

S. HRG. 114-28, PT. 2

**DEPARTMENT OF DEFENSE AUTHORIZATION FOR
APPROPRIATIONS FOR FISCAL YEAR 2016 AND
THE FUTURE YEARS DEFENSE PROGRAM**

HEARINGS
BEFORE THE
COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE
ONE HUNDRED FOURTEENTH CONGRESS
FIRST SESSION
ON
S. 1356

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2016 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CONSTRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

PART 2
SEAPOWERS

MARCH 11, 18 AND 25, 2015



Printed for the use of the Committee on Armed Services

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**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2016 AND THE FUTURE YEARS DEFENSE
PROGRAM**

WEDNESDAY, MARCH 11, 2015

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

MARINE CORPS GROUND MODERNIZATION

The subcommittee met, pursuant to notice, at 9:30 a.m. in room SR-222, Russell Senate Office Building, Senator Roger F. Wicker (chairman of the subcommittee) presiding.

Committee members present: Senators Wicker, Ayotte, Tillis, Sullivan, Blumenthal, Hirono, and King.

**OPENING STATEMENT OF SENATOR ROGER F. WICKER,
CHAIRMAN**

Senator WICKER. It is precisely 9:30 a.m., and this hearing of the Senate Armed Services Seapower Subcommittee will come to order.

Before we begin, I think Senator Hirono and I would both like to express our concern for the seven marines and four soldiers missing after a helicopter crash early this morning in Florida. I understand that the search and rescue mission continues, and we are anxious to receive any news we can. Perhaps our witnesses might have some information about that as they begin their testimony.

The Senate Armed Services Subcommittee on Seapower convenes this morning to examine Marine Corps ground modernization programs. This is the Seapower Subcommittee's first hearing for the 114th Congress.

I welcome my friend and colleague from Hawaii, Senator Hirono, who serves as ranking member of this subcommittee. I look forward to working with Senator Hirono to ensure that our sailors and marines remain the best trained, best equipped, and most professional maritime fighting force in the world.

This morning, we welcome Mr. Thomas P. Dee, Deputy Assistant Secretary of the Navy for Expeditionary Programs and Logistics Management, and Lieutenant General Kenneth J. Glueck, who serves as Deputy Commandant for combat Development and Integration. General Glueck is also the commanding general of the Marine Corps Combat Development Command. Our subcommittee thanks you, and we thank the nearly 185,000 marines who are op-

erating in over 40 countries around the world for your service to our Nation.

Over the past several years, the Marine Corps has been in a transition period moving from counterinsurgency and stability operations in Iraq and Afghanistan to the Marine Corps' more traditional role as a ready and capable rapid response force. This transition has been and will continue to be complicated by fiscal uncertainty, the prospect of sequestration, reductions in end strength and force structure, and challenges with combat vehicle modernization.

Today, our efforts will update us on their efforts to build a global crisis response force of amphibious, combat, and tactical ground vehicles. This force should meet the Nation's requirements for maneuver from the sea that is technologically achievable and affordable. I would like our witnesses to elaborate on the Marine Corps' strategy for modernizing its vehicle fleet, including the amphibious combat vehicle, ACV, and joint light tactical vehicle, JLTV. I would be interested to learn how the Marine Corps plans to meet its ground vehicle requirements within current and projected budget constraints while still maintaining high operational capability and readiness.

I understand the Marine Corps has restructured the amphibious combat vehicle and will release a request for proposals this year. I remain concerned that substituting wheeled armor personnel carriers for amphibious track vehicles could erode the Marine Corps' amphibious assault capability, the capability that separates the Marine Corps from the Army. So perhaps we will hear testimony about that.

I look forward to hearing how the Marine Corps ACV acquisition strategy will reduce fielding time and deliver vehicles incrementally.

Now, with regard to the JLTV, I am encouraged by the progress that the Marine Corps and the Army have made on this multi-service program. The JLTV program office is scheduled for milestone C and the low rate production contract award in this fiscal year. The Marine Corps budget request supports the achievement of initial operational capability in fiscal year 2018. I trust that our witnesses will reassure this subcommittee that the Marine Corps JLTV design and requirements are stable. Such stability would ensure that the Marine Corps will be able to afford to field this important replacement for our High Mobility Multipurpose Wheeled Vehicle's (HMMWV) as soon as possible.

With regard to acquisition of the ACV and JLTV vehicle, I understand that the Marine Corps relies on competition to gauge early on what is technologically feasible and affordable. But competition requires viable competitors, which we do not always have. So maybe we will hear about that. I would like our witnesses to provide their best assessment of the state of the U.S. industrial base for ground combat and tactical vehicles. Perhaps they will suggest what can be done to sustain the viability of our manufacturing base at the contractor and supply chain levels.

Now, with regard to sequestration, the Marine Corps faces significant budget challenges, as do all of our Services. Unless Congress acts, sequestration will return in October of this year. And

I feel like I am singing a song from 2 and 3 years ago. As a member of both the Armed Services Committee and the Budget Committee, I know that tough decisions must be made across the Federal Government. However, I would remind everyone that national defense is solely a Federal responsibility. Defense spending is also a twofer, supporting both our national security and our high tech manufacturing workforce. Sequestration was designed to be so onerous that we would never even proceed to it. And frankly, it is unthinkable that having experienced it once, we would once again move to it later on this calendar year.

The Marine Corps' budget accounts for approximately 6 percent of the Department of Defense's (DOD) total budget. I am concerned that sequestration could disproportionately impact the Marine Corps on everything from modernization to readiness. As such, I hope our witnesses today will elaborate on the impact that sequestration will have on our expeditionary marines, their ability to execute our country's national security strategy, and the vitality of our defense industrial base.

Senator Hirono.

STATEMENT OF SENATOR MAZIE K. HIRONO

Senator HIRONO. Thank you very much, Mr. Chairman.

And thank you to the witnesses who are here. Thank you for your service.

Mr. Chairman, I share your concerns regarding the missing marines and soldiers after a helicopter accident in Florida, and our thoughts are with the families and the members.

Before I begin, of course, I want to acknowledge my delight in being the ranking member on this committee with you, Mr. Chairman, and I certainly look forward to working with you.

The Marine Corps continues its transition from providing forces to support operations in Afghanistan and Iraq back to its more traditional role of a force in readiness, forward deployed at sea or stationed ashore, and ready for crises responses. This transition has been complicated unnecessarily and some might say even dangerously by a fiscal uncertainty associated with the Budget Control Act and the threat of sequestration, which the chairman has already highlighted.

The broader context for this hearing, as you all know will carry over to our shipbuilding and aviation hearings, is much more challenging than just marine ground systems modernization. We are justifiably concerned about the synchronization, stability, technical achievability, and affordability of several long-term, complex and expensive sea, air, as well as land system modernization programs that are necessary to rebuild our amphibious capability. In this regard, several amphibious ship and connector modernization programs are essential to achieve the Navy's and Marine Corps' requirements for a fully capable, globally postured, and ready amphibious force.

As Commandant of the Marine Corps General Joseph Dunford recently said, there is an amphibious ship and connector capability gap that we must deal with if we are to revitalize amphibious forces and meet global demand. Any break or weakness in the chain of transfer or maneuvering of land forces from ship to con-

nector to shore undermines the military power we expect to project with amphibious operations.

While today's focus is primarily on ground capabilities, we want an update from our witnesses on how the Marines' fiscal year 2016 request and future years defense program, FYDP, is synchronize to rebuild modern amphibious forces. We are interested in learning how the Marine Corps will develop and deliver combat and tactical vehicles that are technologically advanced and affordable. We are particularly interested in learning more about current and future requirements, capabilities, and technical feasibility for armored amphibious assault and how Marine plans for an end state force with as many as three different vehicles is justified and affordable.

Unfortunately, we must recognize that the stability and achievability of the Marine Corps' carefully considered plans for ground system readiness and modernization is at risk if sequestration level cuts are triggered for fiscal year 2016 and beyond. We are interested to hear how sequestration at any point compounds challenges to the Marine Corps' size, force structure, readiness, and modernization programs. If necessary, what tradeoffs will the Marine Corps make?

For example, we know that the Marine Corps has gotten smaller and may continue to reduce its end strength to meet Budget Control Act (BCA) caps. How will the Marine Corps analyze and distribute reductions to end strength and force structure among its U.S. and forward-stationed locations? How will the Marine Corps ensure sufficient readiness in its non-deployed forces to maintain strategic depth available for unforeseen contingencies? Will the Marines cancel or delay its new systems development programs, delay the upgrade of current capabilities, or both?

And finally, we would like our witnesses to address the potential impact or risk on its modernization plans under extraordinary budgetary pressures, pressures associated with new or continuing support for ongoing operations around the world.

Of course, our Nation could not be more proud of what the Marine Corps does, what our Marines and their families have accomplished over the past 14 years of war.

Thank you, Mr. Chairman.

Senator WICKER. Thank you very much.

I note that our two witnesses have submitted a joint statement, and without objection, it will be included in the record in its entirety at this point.

[The prepared statement of General Glueck and Mr. Dee follows:]



**Lieutenant General Kenneth J. Glueck, Jr.
Deputy Commandant for Combat Development and
Integration; Commanding General, Marine Corps Combat
Development Command; and Commander, U.S. Marine
Corps Forces Strategic Command**

Lieutenant General Glueck was designated a Naval Aviator in May 1976 and reported to Marine Attack Helicopter Squadron (HMA) 169 at Camp Pendleton, California. During this tour he deployed both with HMA-369 to Okinawa, Japan and with Marine Medium Helicopter Squadron-265. In February 1980 he was reassigned as a Primary Flight Instructor at Training Squadron Three, NAS Whiting Field, Milton, Florida. In July 1983, Lieutenant General Glueck reported to Marine Helicopter One (HMX-1) at Quantico, Virginia where he was designated a Presidential Command Pilot.

Following Marine Corps Command and Staff College in August 1987, Lieutenant General Glueck was assigned to Okinawa, Japan for duty as Air Officer with the Special Operations Training Group, III Marine Expeditionary Force. In June 1989, Lieutenant General Glueck reported as Executive Officer for Marine Light/Attack Helicopter Squadron-269, MCAS New River, North Carolina. In June 1990, he was reassigned as Executive Officer for Marine Medium Helicopter Squadron-365 (HMM-365) participating in Operations Desert Shield and Desert Storm. In June 1991, Lieutenant General Glueck assumed command of HMM-365 and deployed in support of Operation Provide Promise in the Balkans.

Lieutenant General Glueck relinquished command in February 1993 and attended NATO Defense College in Rome, Italy. He was subsequently assigned to Allied Forces Southern Europe as Amphibious Planner in February 1994. In February 1997, Lieutenant General Glueck reported to Headquarters Marine Corps, Programs and Resources. In August 1998, he assumed command of the 26th Marine Expeditionary Unit and deployed for Landing Forces Sixth Fleet deployments 2-99 and 3-00. His units participated in the NATO bombing campaign (Noble Anvil), provided security to refugee camps in Albania (JTF Shining Hope), conducted peace support operations in Kosovo (Joint Guardian), and provided disaster relief following the earthquake in Turkey (Avid Response).

In June 2001, Lieutenant General Glueck reported to Marine Corps Combat Development Command as Director, Expeditionary Force Development Center in Quantico, Virginia. In July 2003, he served as the Commanding General, 3d Marine Expeditionary Brigade and Deputy Commanding General, III Marine Expeditionary Force in Okinawa, Japan, participating in tsunami relief efforts with CTF-536 and FHA and disaster relief efforts in the Philippines as Commander JTF-535.



In April 2005, Lieutenant General Glueck served as the Chief of Staff, United States Southern Command. In June 2006, he assumed command of the 2d Marine Aircraft Wing, II MEF at MCAS Cherry Point, North Carolina. In April 2008, Lieutenant General Glueck was designated the Chief of Staff for Multi-National Force Iraq in Baghdad. In August 2009, he reported to U.S. Africa Command where he served as Director of Operations and Logistics until 1 January 2011. In January 2011, he reported to Okinawa Japan where he assumed command of III Marine Expeditionary Force and U.S. Marine Forces Japan. In March 2011, he also commanded JTF-505 in support of Operation Tomodachi. Lieutenant General Glueck assumed command of Marine Corps Combat Development Command on 8 August 2013.

Lieutenant General Glueck holds a Bachelor of Science degree from MacMurray College, Jacksonville, Illinois and a Master of Science degree in Business Management from Troy State University, Alabama.

(Current as of October 2013)

Thomas P. Dee

**Deputy Assistant Secretary of the Navy
(Expeditionary Programs and Logistics Management)
Office of the Assistant Secretary of the Navy
(Research, Development & Acquisition)**

Mr. Tom Dee assumed responsibilities as DASN (E&LM) on 29 Dec 2012. He serves as principal advisor to ASN (RD&A) on matters relating to expeditionary capabilities, urgent needs processes and acquisition logistics. His portfolio includes U.S. Marine Corps ground programs and Navy expeditionary programs to include combat vehicles, explosive ordnance disposal, counter-IED, and multiple other programs that support our Naval expeditionary forces.

Mr. Dee joined the civil service in 2007 following a 26 year career as a Naval officer. Upon his retirement from the Navy he assumed duties as the first Director of Defense Biometrics within the Office of the Secretary of Defense. On behalf of the Assistant Secretary of Defense, Research and Engineering, he executed Secretary of Defense Principal Staff Assistant responsibilities for oversight of all aspects of the DOD biometrics enterprise. In March 2009, Mr. Dee was appointed to the Senior Executive Service and served as the Director, Joint Rapid Acquisition Cell in the Office of the Under Secretary of Defense Acquisition, Technology and Logistics. While there he oversaw the resolution of immediate warfighting needs as identified by the Defense Department's Combatant Commanders. He concurrently served as the Executive Secretary to the Deputy Secretary of Defense, Deputy's Management Action Group (DMAG) where he coordinated the preparation of strategic issues for executive decision.

While on active duty from March 1980 until his retirement in Jan 2007, he held a variety of worldwide leadership positions spanning operations Desert Storm, SFOR and KFOR in the Balkans, and operations Iraqi Freedom and New Dawn, and Operation Enduring Freedom. In Washington, he served on the SECNAV's USS Cole Task Force, the Joint IED Defeat Task Force / Organization, and as the CNO's Requirements and Resource Sponsor for Expeditionary Force Protection capabilities including EOD, Naval Coastal Warfare, and Navy non-lethal weapons. He culminated his Naval career as Commanding Officer, Naval EOD Technology Division in Indian Head, Maryland where he was responsible for executing science and technology, acquisition, and information programs for the joint service EOD community and providing material and information support to operations in Iraq and Afghanistan.

Mr. Dee holds a master's of sciences degree (national resource strategy) from the Industrial College of the Armed Forces, National Defense University; a master's of arts degree

(international relations) from University of Southern California; and a bachelor's of arts degree (history) from New York University. In 2011 he was awarded the Department of Defense Medal for Distinguished Civilian Service for his support of warfighter requirements.

Introduction

Today, the Marine Corps remains the Nation's premiere expeditionary force-in-readiness. We are the most ready when the Nation is least ready to answer the call globally and to respond to unforeseen events. We operate capably and freely throughout the spectrum of threats, whether they are conventional, irregular or the uncertain hybrid areas where they overlap. Our ability to deploy from the sea in austere environments at a time and place of our choosing - a significant asymmetric, strategic and operational advantage- remains our most important characteristic.

To execute this vision we must achieve balance across our five pillars of readiness; high quality people, unit readiness, capacity to meet combatant commander requirements, infrastructure sustainment, and equipment modernization. Since the Budget Control Act (BCA) of 2011 imposed significant reductions in defense spending, the Marine Corps has chosen to protect the investments and programs that are critical to executing our core competencies, and that support our deployed forces. We have done so at a cost. We have disrupted the balance required by ensuring we maintain the most well trained and ready force to meet the needs of the Combatant Commander at the cost of equipment modernization and investments in future technologies. The longer that we are required to make these difficult trades, the greater the cost becomes. This cost will manifest itself both in terms of dollars required to repair and refit aging legacy systems, the costs to procure future systems, and the additional time it will take to procure the modern capabilities we will require to succeed on the future battlefield. While we have protected investments in our highest priority programs, the imbalance in the portfolio will soon cause us to make unacceptable trades that put at risk our abilities to fully support the National Defense Strategy.

The investments that are made in the Fiscal Year (FY) 2016 President's Budget submission allow us to achieve this precarious balance during the year of execution. However, the costs not only in the out years, but now encroaching on the Future Year Defense Program (FYDP) are unsustainable. Funding the Marine Corps at the levels imposed by the BCA would cause us to impose unacceptable trades between readiness and modernization. The full weight of

sequestration would preclude the Marine Corps from serving as the force in readiness that the nation demands, and cause us to reevaluate our ability to execute our Title X responsibilities.

Operating Environment

Globally Engaged

The Marine Corps ended its combat mission in Afghanistan in 2014 with the turnover of responsibility of Regional Command Southwest. We are supporting the ongoing development of the Afghan Security Forces by sourcing advisors and trainers to the NATO partnership mission. As we transition out of Afghanistan, your Marine Corps remains a forward stationed and forward deployed force operating “in every clime and place.” Throughout the last 15 years of deployments to Afghanistan and Iraq, the Marine Corps never ceased our rotational deployments aboard naval vessels. Today these Amphibious Ready Groups with embarked Marine Expeditionary Units (MEU) remain the nation’s most-flexible, forward postured forces. Our adaptability and flexibility provide unmatched capabilities to combatant commanders, whose demand for these forces routinely exceeds our current resources.

In an effort to meet this growing demand, the Marine Corps has stationed additional forces in the form of Special Purpose Marine Air Ground Task Force- Crisis Response (SPMAGTF-CR) ashore in support of AFRICOM, EUCOM, and CENTCOM. These forces provide the combatant commanders a capability that can support U.S. and partner security interests throughout the theaters of operation, to include embassy reinforcement, non-combatant evacuation operations, and tactical recovery of aircraft and personnel even in periods of absence of naval shipping. The lack of amphibious shipping availability required us to base these forces at fixed sites ashore. Although lacking the advantages of sea based Marine forces, SPMAGTF-CR brings a much needed capability to the combatant commander. They demonstrated their capability following the deterioration of the security situation in South Sudan last January. Upon receiving notification of their mission, SPMAGTF-CR staged their forces at Camp Lemonier, Djibouti on the Horn of Africa after traveling over 3,400 miles non-stop from Spain. More recently these forces assisted in Libya and Yemen to ensure the protection and evacuation of our embassies. While this is a great example of responsiveness, it required the approval of the government of Spain – a pre-condition that seabased forces do not require.

We remain a maritime nation with global interests. Nowhere is this more evident than in the vast expanses of the Pacific. The Marine Corps remains a central part of the rebalance toward the Pacific called for in our National Defense Guidance. We currently have 22,500 Marines west of the International Date Line. Our operations in the Asia-Pacific theater include theater security cooperation exercises, bilateral training events, and crisis response operations. We are adjusting our force laydown in the Pacific.

Future Environment

If one characteristic defines the future operating environment it is uncertainty. Crises, whether natural disasters or manmade, will continue to arise at an ever increasing pace. The 2014 Quadrennial Defense Review correctly states that “the international security environment remains uncertain and complicated. The United States will likely face a broad array of threats and opportunities and must prepare to address both effectively in the coming years.” Exacerbating these future threats is the nature of our adversary’s capabilities. We continue to see the power of disruptive technologies distributed to more diffused and decentralized actors. In what has been described as a ‘new normal,’ extremism, economic disruption, identity politics and social change generate new potential security threats at an accelerating pace.

A year ago we published Expeditionary Force 21, our Marine Corps capstone concept, which establishes our vision and goals for the next 10 years and provides a plan for guiding the design and development of the future force that will fight and win in this environment. It is informing decisions regarding how we will adjust our organizational structure to exploit the value of regionally focused forces and provide the basis for future Navy and Marine Corps capability development to meet the challenges of the 21st Century. Developed in close coordination with the refresh of the maritime strategy, Expeditionary Force 21 provides guidance for how the Marine Corps will be postured, organized, trained, and equipped to fulfill the responsibilities and missions required around the world. We plan on updating Expeditionary Force 21, in order to continually guide refinements to how we operate from the sea and provide the right sized force in the right place, at the right time.

A key attribute of this force will be its requirement to remain flexible, with the capability to arrive from a variety of platforms and seamlessly aggregate to serve as a leading edge of the

United States response or assume command of a Joint Task Force (JTF). In addition these forces will operate over even greater distances and be employed in even smaller packages to include the increased reliance on independent company sized units. This diffusion of combat power will place increasing demands on our command and control, communication, and logistics support architecture.

Reset and Reconstitution

Since August 2012 we have been executing a deliberate Ground Equipment Reset Strategy to guide our efforts to repair, replace or recapitalize our war-torn equipment and rapidly return it to our operational forces and strategic equipment programs to improve readiness, while at the same time upholding our enduring commitment to being good stewards of the Nation's resources. As of February of this year 100 percent of our equipment has been withdrawn from Afghanistan and approximately 56 percent of our total reset requirement has been completed. With Congress's continued support we anticipate completing reset by the end of fiscal year 2017.

Our reset strategy is enabling our overall reconstitution effort. While we reset our force, we are simultaneously working to right-size and balance our ground equipment inventory to ensure it is optimally aligned to operational requirements and our post-war force structure. Our reconstitution effort will ensure that we are optimally organized, equipped and postured to remain the nation's most-ready, forward postured forces.

Equipment Modernization

With the smallest modernization budget in the Department of Defense, the Marine Corps continually seeks to leverage the investments of other services, carefully focusing our modernization resources to those investment areas which are the most fiscally prudent and those which promise the most operationally effective payoffs. Our highest priority modernization efforts are those associated with our amphibious forcible entry and crisis response capabilities. These core competencies require continued development of our capabilities for surface and air ship-to-shore movement, sea based command and control, operational reach, and Marine Expeditionary Units and Special Purpose Marine Air-Ground Task Forces.

The Marine Corps has seen a consistent decrease in funding for modernization and installations since FY 2013, while increasing the percentage of the top line for manpower and holding near-term operational readiness funding steady. This was a conscious choice as we maintained a high level of operational readiness for the current force, while accepting risk in modernization for the future force. The percentage of overall Service funding for Manpower has grown from 59 percent to 61 percent from FY13 and FY16, while over the same period the figure for equipment modernization has dropped from 10 percent down to 9 percent. The difficulty in making reductions of this magnitude is that the major investment programs (i.e. ACAT-I) are on the order of hundreds of millions of dollars, and their funding profiles must be stabilized in order to maintain program viability. Even then, funding reductions to those programs have resulted in quantity and/or capability reductions or delays. In other cases, legacy capabilities have accepted high levels of risk in order to prioritize modernization programs; the funds planned for the legacy systems are reduced so that the Marine Corps has tradespace with which to pursue modern capabilities. For example, the Marine Corps has had to cancel the High Mobility Multi-Purpose, Wheeled Vehicles (HMMWV) Sustainment Modification Initiative program in order to fund the higher priority the Joint Light Tactical Vehicle (JLTV) program. . Similarly, the Light Armored Vehicle (LAV) Survivability Upgrade Program (SUP) was discontinued in order to ensure full funding of the LAV Anti-Tank Modernization program.

The trades between modernization and the sustainment of legacy equipment, which is what Marines have in their hands today to execute today's missions, creates further risks to Marine Corps readiness if modernization efforts are not continued on schedule. In earlier years, this risk was largely in the "out-years." However, as we have continued to accept risk in modernization or improvement in successive budgets, those "out-year" impacts have become "near-term" and our readiness is now at risk as we are unable to fund both the sustainment of our legacy capabilities and properly invest in the programs intended to replace them.

The implications of the imbalances described above are that we've had to make some hard choices to fund only the most critical modernization programs and sustainment capabilities, while choosing to discontinue and unfund a number of lower priority capabilities. While these requirements remain valid, we simply cannot fund them all. In FY2015 and FY2016, we have

unfunded 13 programs, primarily within the maneuver and C2 portfolios, while making painful reductions to others.

We have accepted “good enough” and reduced the quantities of modernized equipment we are procuring. As a result, units or Marines may be required to draw equipment from an allowance pool prior to deployment rather than fielding equipment quantities for individual issuance. We have also accepted risk in certain capabilities in order to use all available tradespace to pursue only the most critical threshold capabilities. Our intelligence and logistics portfolios have taken the majority of these decrements and cannot withstand further reductions without eliminating capabilities.

An example of this risk is our Networking on the Move (NOTM) program. NOTM systems extend secure, non-secure and coalition Internet Protocol (IP) routing (Non-Classified Internet Routing Protocol (NIPR), Secret Internet Protocol Routing (SIPR), and mission specific network connectivity from a fixed location to units operating in the air and / or on the ground while on the move and at the halt. This allows users to access common C2 applications, E-mail, chat, and collaboration tools for the real-time exchange of voice, video, and data. Although we have an acquisition objective of 140 systems, due to budget pressures, we've had to truncate our procurement at only 59 systems.

Ground Combat and Tactical Vehicles (GCTV)

The Marine Corps GCTV portfolio modernization programs account for approximately 50 percent of the Marine Corps ground modernization investment. The overarching priority within the GCTV portfolio is the replacement of the legacy Amphibious Assault Vehicle (AAV) with modern armored personnel carriers (APCs) through a combination of complementary systems. The Amphibious Combat Vehicle (ACV) program is the Marine Corps' highest ground modernization priority and will use an evolutionary, incremental approach that consists of two increments, ACV 1.1 and ACV 1.2. Increment 1.1 will field a personnel carrier; Increment 1.2 will improve personnel carrier capabilities over Increment 1.1 and will deliver command and control (C2) and recovery and maintenance mission role variants.

The AAV SUP improves AAV capability in four of the 10 amphibious vehicle companies, in order to support MEU deployments and when globally sourced, provide the essential capacity

necessary for the assault echelons of two Marine Expeditionary Brigades. ACV Phase 1.1 modernizes two of our 10 amphibious vehicle companies. ACV Phase 1.2 will modernize the remaining four of 10 companies. This combination of a modern amphibious armored personnel carrier alongside the improved AAV generates a complementary set of capabilities to meet general support lift capability and capacity requirements of our Ground Combat Element.

In parallel with these modernization efforts, a science and technology portfolio is being developed to explore a range of high water speed technology approaches to provide an affordable, phased modernization of legacy capability to enable extended range littoral maneuver. These efforts will develop the knowledge necessary to reach an informed decision point in the mid-2020s on the feasibility, affordability, and options for developing a high water speed capability for maneuver from ship-to-shore.

The second highest priority within the portfolio remains the replacement of a portion of the HMMWV fleet that is most at risk; those trucks that perform a combat function and are typically exposed to enemy fires. In partnership with the Army, the Marine Corps has sequenced the JLTV program to ensure affordability of the entire GCTV portfolio while replacing one third of the legacy HMMWV fleet with modern tactical trucks prior to the fielding of ACV 1.1.

These core Marine Corps modernization efforts have been designed in a manner to ensure their affordability. However, if the budget is fully sequestered in FY 2016 or beyond, it will jeopardize both the timing and resources required to undertake this strategy and greatly affect our ability to achieve our requirements in both vehicle fleets.

Amphibious Combat Vehicle 1.1

Leveraging demonstrated mature technologies, ACV Phase 1.1 will be acquired as a modified non-developmental item (NDI) and is approved to enter the acquisition phase at Milestone B. A request for proposal will be released in the spring of this year with an expected Engineering and Manufacturing Design (EMD) contract award to two vendors in the fall of 2015 and a competitive down-select for production in FY2018. The acquisition objective (AO) of 204 vehicles will provide lift for two infantry battalions and will achieve Initial Operational Capability (IOC) in FY 2020. The aggressive acquisition schedule for ACV 1.1 requires full funding and support from Congress. A return to sequestration level funding will cause this

program to be indefinitely delayed. There is insufficient trade space within the modernization account to afford a generational investment such as a combat vehicle replacement program, even one conducted incrementally, under the full burden of budget control act limitations.

AAV Survivability Upgrade Program (AAV SUP)

AAV SUP is a well-defined program to increase the capability of the current vehicle by providing force protection upgrades to counter current and emerging threats to the underside of the vehicle. Specifically, the program will provide improved armor, spall liners, blast mitigating seats and protected fuel storage. These improved AAVs will play an essential role in facilitating ship-to-shore mobility until replaced via a future phase of the ACV program. A contract was recently awarded to conduct this work. Funding supports continuation of the EMD phase and associated prototyping and testing. The AO for the program is 392 vehicles with IOC in FY2019.

Approximately 29 percent of the planned AAV upgrades are currently unfunded (and the upgrade plan only includes roughly one-third of the legacy fleet), resulting in a loss of economic order quantities and inability to maintain cost threshold. Operationally, the delay to the upgrade of an already overaged fleet will result in a reduced capacity to conduct forcible entry operations.

Joint Light Tactical Vehicle (JLTV)

The Department remains firmly partnered with the U.S. Army in fielding a JLTV that lives up to its joint name, while also being affordable. JLTV will deliver a modern reliable truck with M-ATV protection and unarmored HMMWV land mobility and transportability performance to begin replacing the highest risk portions of our light fleet in 2018. The JLTV has effectively controlled ownership costs by maximizing commonality, reliability, and fuel efficiency, while achieving additional savings through effective competition in all stages of program execution. The program is scheduled to complete the Engineering and Manufacturing Development stage later this year, down-select to one of three competing vendors and begin the production and deployment phase. Funding for major activities in this budget includes test and evaluation, procurement of 109 Low-Rate Initial Production (LRIP) assets, and associated government furnished equipment procurement, publications and technical data.

The JLTV Program will procure only 5,500 vehicles by the year 2022, with the Marine Corps GCTV Strategy requiring a fleet of 17,860 by the year 2035. Fiscal constraints compounded by years of sequestration curtailing modernization and sustainment will make achieving the procurement very challenging. We planned to mitigate risk through the HMMWV Sustainment Modification Initiative (SMI) to upgrade and maintain 13,000 HMMWVs in the legacy fleet, but further fiscal pressure forced a subsequent decision to cancel the HMMWV SMI program. The resulting risk is that the legacy HMMWV fleet will be degraded from this point forward, with no planned upgrade or replacement until JLTV is fielded, beginning in FY2018. The reduced JLTV procurement will result in a gap in battlefield mobility for those units not included in the JLTV fielding plan.

Ground Force Command and Control

Critical to the success ashore of the Marine Air Ground Task Force (MAGTF) is our ability to coordinate and synchronize our distributed C2 sensors and systems. Our modernization priorities in this area are the Ground/Air task Oriented radar (G/ATOR) and the Common Aviation Command and Control System (CAC2S) Increment 1. These systems will provide modern, interoperable technologies to support real-time surveillance, detection and targeting and the common C2 suite to enable the effective employment of that and other sensors and C2 suites across the MAGTF.

Ground/Air Task Oriented Radar (G/ATOR)

G/ATOR will support air defense, air surveillance, counter-battery/target acquisition, and aviation radar tactical enhancements; the final evolution will also support the Marine Corps' air traffic control mission. G/ATOR Block 1 provides air defense and air surveillance capability, achieved Milestone C in 2014 and is currently procuring LRIP units. G/ATOR Block 2 provides counter-battery/target acquisition and is in the EMD phase of acquisition. Funding in this budget includes RDT&E funding for testing of G/ATOR Block 1, development and testing of G/ATOR Block 2 software, procurement funding for the LRIP of two G/ATOR Block 1 systems and four G/ATOR Block 2 systems.

If we face a sequester capped budget in the case of G/ATOR , irregular production schedules and cancellation of the Block 2 capability (Ground Weapons Locating Radar) will cause the

Program Acquisition Unit Cost (PAUC) to increase by 75 percent which equates to an increase by nearly \$40M per radar. Compounding this issue the legacy TPQ-46 radar that is scheduled to be replaced by G/ATOR Block 2 is not programmed to be sustained. This would mean that Marines would be relying on ever aging platforms, with limited to no funds allocated to sustain them if pressed into service to respond to a major contingency. By 2018, the Marine Corps would be unable to maintain interoperability with critical Navy systems through our Composite Tracking Network, which links fire-quality data provided by the G/ATOR radar to Navy and Joint Integrated Air Defense systems. The Marine Corps will not be able to extend the air defense portion of the Navy Sea Shield concept, reducing the Naval Service's ability to conduct operations in an Anti-Access/Area Denial environment.

Common Aviation Command and Control System (CAC2S)

Phase I Limited Deployment Capability was achieved 2nd Quarter FY2012 and the initial fielding of was complete during 4th Quarter FY2013. Phase 2 addresses the remaining Air Combat Element (ACE) Battle Management and C2 requirements. Phase 2 is currently in the EMD Phase with a Milestone C scheduled for the second quarter of FY 2015. Funding in this budget supports the assembly and Initial Operational Test and Evaluation of the first four Limited Deployment Units. Phase 2 completion will result in the delivery of the full CAC2S Increment I capabilities and is planned to begin fielding in FY 2017. The approved AO is 50 systems.

Combat Operations Center (COC)

For the past 10 years, the Combat Operations Center (COC) has provided the Marine Corps with a common, modular, scalable, and Jointly interoperable operational facility (OPFAC) within the Command Post to facilitate an expeditionary C2 capability centered around execution of the Six Warfighting Functions (C2, Fires, Maneuver, Intelligence, Logistics, Force Protection) and the Marine Corps Planning Process both in combat and non-combat operations.

The COC provides facilities from which the commanders from Marine Expeditionary Force (MEF)/JTF down to the battalion/squadron direct, interact and coordinate with higher, adjacent and subordinate units/agencies across the MAGTF and Joint/Coalition partners. Additionally, the COC provides a deployable common, modular, and scalable C2 facility that acts as the 'nerve

center' where information is aggregated, organized, and displayed in order to aid MAGTF commanders and staffs with the facilitation and integration of critical Information Exchange Requirements employed in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission throughout the full Range of Military Operations.

The President's Budget for FY2016 requests \$21.3M to continue hardware and software refresh efforts necessary to maintain the system as a secure and relevant command and control capability.

Other Ground Programs

Individual Marines are the foundation of the Marine Corps, the MAGTF and our expeditionary capability. In addition to the major programs described above, this budget supports the continued delivery of required warfighting capabilities to our individual Marines and our flexible MAGTF structure in a timely and affordable manner. The Marine Corps continues to invest in the weapons, individual protective equipment, tactical radios, training systems, and information technology necessary to ensure an effective and efficient fighting force and keep faith with our commitment to those individual Marines who shoulder the burden and privilege of being America's expeditionary force in readiness. As has been previously stated, it is within this large portfolio that a majority of the hard trades have been made to preserve readiness. Further reductions in these areas will only reduce both our capacity and capability, while driving up costs for future innovation.

Conclusion

On behalf of the Marines and Sailors who provide the Nation with its forward deployed crisis-response force, we thank you for your constant support in an era of competing challenges. We are proud of our reputation for frugality and we remain one of the best values for the defense dollar. These critical modernization investments, among many others, will ensure our success not if, but when future conflict occurs. Fiscal uncertainty has threatened both our capacity and capabilities, forcing us to sacrifice our long-term operating and training health for near-term readiness. Recognizing these fiscal challenges, we remain committed to fielding the most ready Marine Corps the Nation can afford.

The priorities reflected in the FY2016 budget are the modernization efforts that we must have to remain an affordable insurance policy for the American people. These efforts will allow the Marine Corps to remain a highly efficient and effective hedge against global and regional tensions that cause instability. Forcing additional cuts by imposing sequester level cap both exacerbates the precarious balance that we have worked to achieve and dramatically increased both cost and risk to the future force. As always, we will continue to provide our nation's leaders with the time and decision space they need by responding to today's crisis, with today's force...today.

Senator WICKER. Which of you gentlemen would like to proceed?
General GLUECK. I can go first.

Senator WICKER. General Glueck, thank you very much. And if you could, tell us what you know about this morning's helicopter crash.

General GLUECK. Well, as far as I know right now, you know, it is under investigation as time goes on. We know that it occurred just outside of Eglin Air Force Base, and it included both U.S. Army, I believe, special forces, as well as our Marine special operations forces as well. They do a lot of training down in that area

in the panhandle of Florida, and from indications I heard this morning that there is potential that there could be a problem with weather. So that is about what we have at this present time, sir.

Senator WICKER. Thank you.

General GLUECK. But thank you to both of you for your condolences.

Senator WICKER. Well, we appreciate that update.

If you will, then proceed, as you will, to summarize your testimony.

General GLUECK. Chairman Wicker, Ranking Member Hirono, and distinguished members of the subcommittee, thank you for this opportunity to testify before you today.

The Marine Corps' ability to serve as our Nation's premier crisis response force is due, in large part, to this subcommittee's continued strong support, and on behalf of all our marines, I would like to say thank you very much.

A forward-deployed Marine Corps provides our Nation a universal tool that can be immediately employed. This force can serve as the leading edge of the larger joint force or deploy and sustain itself in even the most austere of environments. Our ability to rapidly respond to developing crisis not only ensures that the combatant commanders have the right force in the right place at the right time, but provides national leaders with valuable decision space.

To execute this mission, the Marine Corps pursues technologies that allow us to develop and sustain a ready, balanced force that is flexible, survivable, lethal, and highly expeditionary. Combatant commanders will task this force to operate across a range of military operations in smaller and distributed formations.

Our modernization programs are aimed at equipping these forces with the necessary capabilities to achieve success no matter what the mission or who the adversary. As the Department of the Navy and your Marine Corps confront the challenges of budget constraints of sequestration, we are evaluating priorities and making hard choices that are necessary to maintain the right balance in capacity, capability, and industrial base sustainment. With the smallest modernization budget in the Department of Defense, the Marine Corps continually seeks to leverage the investments of the other services, carefully allocating our modernization resources to those investment areas which are the most fiscally prudent and those which promise the most operationally effective payoffs.

Innovative warfighting and can-do leadership are hallmarks of our corps, but these cannot overcome the vulnerabilities created by our rapidly aging fleet of vehicles. Long-term shortfalls in modernization have a detrimental impact on readiness, degrade our crisis response capability, and will ultimately cost lives.

We are seeking to balance the increasing costs and inefficiencies of maintaining legacy programs with required investments in modernization. Our ground vehicle modernization strategy is to sequentially modernize priority capabilities, reduce aging equipment inventories whenever possible, and judiciously sustain remaining equipment.

The future security environment requires a robust capability to operate from the sea and maneuver ashore to positions of advantage. The amphibious combat vehicle, or ACV, is the Corps' highest

ground modernization priority. This program, when coupled with the improvements to our existing fleet of amphibious assault vehicles, AAVs, generates a complementary set of capabilities for both littoral forceful entry and high-speed operational maneuver.

In parallel with these modernization efforts, a science and technology portfolio is in development to continue our exploration for high water speed technology. These efforts will develop the knowledge necessary to reach an informed decision by the mid-2020's on the feasibility, affordability, and options for developing an extended range high water speed ship-to-shore capability.

The second highest priority within our portfolio remains the replacement of a portion of our legacy HMMWV fleet. These trucks performed well in combat conditions, but lacked the maneuverability and force protection required to meet both current and future enemy threats. In partnership with the Army, the Marine Corps has sequenced the JLTV program to ensure affordability of the entire ground tactical vehicle portfolio.

These Corps modernization efforts have been designed in a manner to ensure their affordability. However, if the budget is sequestered in fiscal year 2016 or beyond, it will jeopardize both the timing and resources required to undertake this strategy.

In addition to our critical investments in mobility, the fiscal year 2016 budget includes a request for the next generation radar which will replace five of our legacy systems. The ground-air task-oriented radar is a multi-role, ground-based expeditionary radar that provides greater operational reach, volume, and precision to identify and track both friendly and hostile forces and interfaces with our Navy systems to project land and sea power beyond the littorals.

A critical enabler for our future force remains our advanced command and control systems. As we design our force to operate more rapidly across greater distances, the ability to communicate and utilize the most up-to-date information becomes a critical capability gap. It is within this portfolio that we will begin to see the creeping costs of reduced budgets. While our highest priority programs are either partially or fully funded, the ability to maintain their currency in the future years is uncertain. This puts at risk our ability to conduct near-term and future joint and combined operations.

The Marine Corps continues to prioritize near-term readiness above the other attributes of the force. However, that readiness must be balanced in terms of accepting risk by sustaining legacy systems and modernizing key programs to ensure effectiveness on the future battlefield. The demand for the expeditionary capabilities that marines provide to the Nation will only increase. The marines tasked with executing these missions will be asked to do so with the equipment provided by our modernization programs today, but we must be mindful that by sacrificing today's modernization efforts, we will actually be degrading our future readiness.

Priorities reflected in the fiscal year 2016 budget are the modernization efforts that we must have to remain the most ready when the Nation is least ready. In partnership with the Navy, the Marine Corps look forward to working with you to address these issues.

Thank you for this opportunity to be here and I look forward to your questions, sir.

Senator WICKER. Thank you.

Mr. Dee, do you have any additional testimony to add at this point?

Mr. DEE. Yes, sir, if I may make a very brief opening statement. Senator WICKER. Please.

STATEMENT OF THOMAS P. DEE, DEPUTY ASSISTANT SECRETARY OF THE NAVY, EXPEDITIONARY PROGRAMS AND LOGISTICS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE NAVY, RESEARCH, DEVELOPMENT, AND ACQUISITION

Mr. DEE. Chairman Wicker, Ranking Member Hirono, and distinguished members of the subcommittee, thank you for the opportunity to testify before you today.

General Glueck has highlighted the importance of our Marine Corps as America's expeditionary force in readiness to the security of this Nation, and he commented on a few of the priority modernization programs for which we are requesting funding in fiscal year 2016.

Yesterday, the Commandant of the Marine Corps testified before the full committee and outlined the risks associated with the specter of sequestration should the Budget Control Act of 2011 be implemented this year or in future years.

But regardless with what happens with sequestration this year or next, the Marine Corps already has the most austere investment budget of any service with only about 10 percent of their total obligation authority, or only about \$2 billion, requested in fiscal year 2016 for the research and development and procurement accounts. These funds need to cover the range of Marine Corps ground force capabilities from combat and tactical vehicles to artillery and missiles, enterprise information technology, command and control radars, unmanned aerial systems, personal protective equipment, small arms, ammunition, generators, tents, and everything in between. With the need to stretch so few dollars over so many critical capabilities, the Marine Corps is especially conscious of making every dollar count and of the opportunity costs of making less than optimal decisions.

So for that reason, we are committed to using every option in the acquisition toolbox to control costs as we deliver the finest equipment to our marines and balance the imperative of current readiness with the requirement to modernize and assure our future readiness. Competition, contract incentives, affordability caps, should-cost goals all help us to execute affordable modernization programs. And of course, we need stable and realistic requirements, and through early and extensive collaboration among our combat developers, our programmers, our engineers, and our acquisition professionals, we avoid pursuing the unachievable or unaffordable requirements that will place undue risk on our programs.

We also need stable budgets. Over the past few years, the Navy and the Marine Corps team has been diligent in making difficult trades to balance risk within our modernization portfolios. Unpre-

dictable budgets, continuing resolutions, and other uncertainties inhibit our ability to effectively plan and execute the programs that will ensure that the Marine Corps will remain America's expeditionary force in readiness well into the future.

Mr. Chairman, thank you for the support you and your committee have provided and continue to provide to our Marine Corps. I look forward to answering your questions.

Senator WICKER. Thank you.

This clock in front of me says 6 minutes. So I think that is a good enough suggestion for us, so we will begin with 6-minute rounds.

Let me start, General Glueck, with you. On the fiscal year 2016 budget request, does that account for sequestration returning?

General GLUECK. Mr. Chairman, no, it does not.

Senator WICKER. Well, I think that points up a challenge that we have at the subcommittee level and also as an entire Congress. Sequestration right now is the law of the land. I think we all understand that. Unless the law changes, sequestration is back in October of this year. If that should occur, what are your plans to manage risk and program development in that eventuality, General?

General GLUECK. Mr. Chairman, as stated yesterday by the Commandant and also by the Secretary of the Navy, if we do not deal with the sequestered budget, then we will have to go ahead and do mission analysis of the Defense Security Strategy. And based on that, then the Marine Corps would go into do a deep dive analysis on exactly how we best can be organized, trained, and equipped to be able to support the mission that we have for the future.

Senator WICKER. I honestly hope that Congress is taking this seriously enough, but I have seen it play out before.

How well positioned are you to do this deep dive on a fairly expedited basis? Because October 1st is going to be here before we know it.

General GLUECK. Yes, Mr. Chairman, I understand that. We have been working on this program for quite a while looking at different eventualities. But a lot of it will come down to the strategy and how the joint force and OSD and how we determine what the strategy for the future will be and how the Marine Corps will best fit into that for us to actually come to the real clarity that you are looking for.

Senator WICKER. Mr. Dee, I was interested to hear you say that even without sequestration, the Marine Corps budget is the most austere of the services. Why is that? Is that a decision that we made at the congressional level or is it something that DOD decided we could live with? Help us understand that.

Mr. DEE. So the Marine Corps, along with the Army, but to a greater extent than the Army, is reliant on the individual marine. So the bulk of the Marine Corps budget is expended on manpower costs, manpower training operations, et cetera. So once you pay those bills, the manpower costs and the O&M costs, the operating forces costs add up to about 90 percent of the Marine Corps budget, over 60 percent for manpower alone. So that only leaves about 10 percent for investment, and that is the primary reason why the Marine Corps' budget is so low.

Senator WICKER. General, how is the transition going from the Iraq and Afghanistan counterinsurgency and stability model to the more traditional role as a ready and capable rapid response force?

General GLUECK. Thank you for that question, sir.

I think the transition is going extremely well. You know, we never walked away from our amphibious roots. Even during the time that we were conducting operations in Iraq and Afghanistan, we still had our marine expeditionary units that were forward-stationed and forward-deployed around the world.

As we have come back out of Afghanistan and Iraq, at this point what we needed was to take a look at a new strategy. And based on that, we wrote a capstone concept for the Marine Corps, which is entitled Expeditionary Force 21. That was signed last year in March, and that kind of laid out the guideline for the next 10 years of how we intend to operate across the range of military operations. And to this point, that has been highly successful.

We were able to take that concept, Expeditionary Force 21, and the Commandant signed it in March of 2014. And just here in Bold Alligator here just last September – October, the forces down at II MEF and the naval forces that were assigned as well actually took that and moved it into actual execution. So I think that is a pretty strong message that we have actually been able to go ahead and take a strategic concept at a service level and be able to get it down to both the operational and tactical level, and it is being embraced very well.

Senator WICKER. Thank you. I think it is a matter of where the emphasis is, and the capability has to be there for both.

I have been saying this to everybody that would listen. I think we have had great success in Afghanistan. I do not think the American people perhaps understand how successful our operation has been there. And I would just hope that we as decision-makers and particularly the commander in chief as a decision-maker would make sure that we not leave too early based on a political agenda in Afghanistan and that instead, we do the things necessary to solidify our gains there and make sure that what has happened in a somewhat different but somewhat analogous situation in Iraq do not occur in Afghanistan.

My congratulations to our outstanding troops for getting us where we are, and that is on the cusp of success in Afghanistan. Thank you very much.

Senator Hirono?

Senator HIRONO. Thank you, Mr. Chairman.

The fiscal uncertainty that we have been operating under for too many years has resulted in a chronic and increasingly dangerous disconnect between strategy, military requirements, budget estimates, appropriations, and the efficient and effective execution of funds to support current operations, build and sustain readiness, and prepare for a dangerous future. In fact, General, you noted at the beginning of your testimony that what is certain about the future is its uncertainty.

I have several questions about this fiscal environment and how the Marine Corps will manage its way through a number of scenarios.

First, either one of you can respond, General or Mr. Secretary. What have you learned in this environment of uncertainty about estimating and executing your budget to mitigate or build flexibility, a word that I note you used several times in your testimony, General, into your programs and achieve, as best you can, your most important priorities?

General GLUECK. Thank you for that question.

When you look at readiness for the future, the way the Commandant defines it is in five pillars: the personnel unit, modernization of equipment, the infrastructure, and of course, our ability to support the combatant commanders, which is warfighting. So as we move forward in that, it is about maintaining that balance. And even in the 2016 budget, while there is a certain balance—we put priority, of course, in our near-term readiness of our forces that would be forward-stationed and forward-deployed. So we took reductions, of course, modernization and also in our infrastructure.

What we really look forward to do in the 2016 budget and beyond, we would like to be able to put stability in there so that we can have particularly the fiscal stability for procurement of the weapons systems that we need to modernize for our force. You know, today when you look at an amphibious assault vehicle, it is well over 40 years old. You are looking at a HMMWV that is over 30 years old. I mean, those vehicles are old, they are tired, they need to be replaced. We will do what we can to go ahead and bring some of those up to an acceptable standard. But to be the Marine Corps that you want I think and our Nation needs for the future, it is time that we need to do some modernization. And the way we look at these vehicles is that they are fully complementary with one another for the missions that we see particularly coming from the sea.

Senator HIRONO. So, General, your priorities were for near-term readiness as we were in Afghanistan and Iraq, and you are saying that we delayed the modernization priorities for too long and we really need to move forward on that with your aging vehicles. I think that your testimony noted that the modernization of all of these vehicles will amount to hundreds and hundreds of millions of dollars. So within that context, how do you determine which vehicles are the most important to modernize, which vehicles are you going to try to get longer life from? You have already done those kinds of assessments?

General GLUECK. Yes, we have. We have done exhaustive assessments on this and worked this very, very closely.

You know, we believe that the number one priority, as the Commandant has stated, is the amphibious combat vehicle, which is number one. We have about 1,062 AAV's that we have been operating for the past 40 years. Some of those amphibious assault vehicles we will do a survivability upgrade on, which will be about 392 of those vehicles. And that will enable us to maintain a forceful entry capability for all seven of our Marine Expeditionary Units, as well as our two Marine Expeditionary Brigades, which we are required by law to be able to maintain the forceful entry capability of two brigades simultaneously. So that 392 will address that.

So the overall requirement that we have for our marines is to have armored lift for 10 battalions of infantry. With our AAVs, the

392 that get the survivability upgrade, they will be able to carry four infantry battalions. With the ACV 1.1 and the 1.2, they will account for an additional six infantry battalions. So that is where you are going to get your 10 battalions' worth of lift to be able to take us into the future.

And so we looked at these vehicles as being complementary in nature. It is not that they only have to be complementary amongst themselves, but they have to be complementary to our overall objective of operational maneuver from the sea. And if you look at the amphibious ships, you look at the connectors that are required to support the sea basing, it is all complementary in nature and it is all about having a family of vehicles that are tied and linked together to be able to give us that operational capability reach that we want.

Senator HIRONO. So I realize that that is your current plan right now, which does not take into account sequestration. So if we do not deal with sequestration in the way we should, which is to eliminate it, would you just then decrease the number of battalions? Would you just impose numbers? Would it be a numbers decision for you?

General GLUECK. It will actually be a capability decision. You know, as our Commandant has stated, we are only going to be as big as we can be good. That is a strong statement. And it is not just about numbers. It is about quality and capability of the force. So if we are sequestered, it will come down to priorities. Like I said, the number one priority would be the amphibious combat vehicle. At some point, what you will find is that programs get stretched out. You have to take cuts in other programs, and we are willing to do that if necessary to be able to meet the objectives that will come from the strategy.

Senator WICKER. You can take another round.

Senator HIRONO. Am I done? Oh, my goodness. How time flies. I will go into a second round. Thank you, Mr. Chairman.

Senator WICKER. Senator Sullivan, does this uniform look familiar to you?

Senator SULLIVAN. Yes, Mr. Chairman. It is a sharp looking uniform if I do say so myself.

Thank you, Mr. Chairman. And gentlemen, thanks for your testimony.

General Glueck, I appreciate in particular the emphasis in your testimony, particularly during the challenging times we are all seeing with regard to the budget, on the frugality or what I like to refer to in testimony yesterday with the Commandant and the Secretary of the Navy as the bang for the buck that the Marine Corps provides. I think it is good for the American people to know that. It does not get out there a lot. I know Marines take a lot of pride in that frugality, and you know, the number that the Commandant mentioned yesterday, 6 percent of the DOD budget, 21 percent of the infantry battalions—and it is not just the quantity. It is the quality. Those infantry battalions are some of the best in the world, and I think that is a statement that is irrefutable in my view.

So what I would like to focus on a little bit initially is the rebalance to Asia and the discussion particularly with regard to the ground forces. And I think you know, General, this committee for

years has been looking at some of the rebalancing that the Marine Corps has been doing from Okinawa to Guam. And as part of our oversight responsibilities, some of the members of this committee will be heading out to the region relatively soon to get a more detailed look at some of those issues.

So I was just wondering from the perspective of how you would have us think through those issues, do you think that that redeployment is going well? And what are the big issues that you would want us to be focusing on?

General GLUECK. Sir, thank you very much for that question.

Prior to this assignment, I was the commanding general of the 3rd Marine Expeditionary Force in Okinawa. So I am fairly conversant on that.

Our Marines in Okinawa—you know, the mantra that we had for them was they need to be prepared to fight the night, and that would be in Korea. That is probably our most dangerous scenario.

As we look at the rebalance, for us, when I got there, we did not even have our Unit Deployment Program (UDP). Our unit deployment plan had been in support of Afghanistan and Iraq over the years. So we lacked our infantry battalions. And thanks to the foresight of the Commandant, as soon as we were pulling out, we reconstituted those forces and put those battalions back into Okinawa. So that was a major step forward, and that was even before the shift in the strategy.

So as you stand today, the intent is to maintain 22,500 marines west of the International Date Line. So it comes down to where are those Marines going to be positioned.

Senator SULLIVAN. Can I ask about that? Because, you know, the Commandant talked about that a little bit yesterday. You have the Date Line, but you also have—I was looking at a map yesterday. The Marines in Darwin are actually further from Korea than troops in Anchorage, Alaska. And I am not advocating yet for a Marine Corps base in Alaska, but that could be coming. But I mean, there is this kind of Date Line issue, but there is also proximity. And Darwin is pretty darned far from Northeast Asia.

General GLUECK. That is true. But also, as you know, Asia is a very big Area of Responsibility (AOR). And if you look at what we had down in the southern region, we really had nothing at that time. You know, we started off with Darwin. We actually put a rifle company down there. It was the very first element that we stuck down there. And I think they were probably the most publicized rifle company in the Marine Corps history when they went down there. It actually disappointed the Australians on well behaved they were.

So we have taken that and actually the intent is to take that up to about a level of about 2,500, and that is going to be based on the infrastructure that actually is down there working with our host to be able to support that. This last detachment that went down there or element that was there was in the neighborhood of about 1,200. So we are going to continue to increase that size to be able to take some of that pressure off of Okinawa.

But you also know that down in Darwin you can only train for about 7 months out of the year because of the monsoon season that comes in there. So we are a little bit limited on that. But as a com-

mander of III MEF no matter where I was going to put forces, whether it was going to be in Darwin or I am going to put them in Guam, to me it came down to operational capability and what you can do with that capability. You know, it is the marines. It is the infrastructure that supports those marines. It is the equipment. It is the training, the ability to be able to sustain yourself and proficiency, and then it is the strategic lift to be able to move those marines someplace to do something.

So the area I think that we need to focus on here, particularly when you look at Darwin in particular, is what is the strategic lift that we are going to go ahead and tie to them to be able to use them as force in readiness, whether it is crisis response or whatever the case may be. The same thing with Guam. It is those five factors. So if you want to have an operational capability, you have got to have all of those five factors.

Senator SULLIVAN. Thank you.

Let me switch to another issue that has been coming up in a lot of the testimony, and that is the challenges in the Arctic. You know, the Russians are making a very bold, in many ways, very definitive move into the Arctic with building several new airfields. General Dempsey mentioned in his testimony with Secretary Carter recently the Russians are looking at increasing brigades, up to six brigades, four of which will be based in the Arctic. And in terms of new icebreakers, they have a fleet of 40, 6 new ones, 5 additionally planned. I think we are number five in the country in terms of icebreakers. So, you know, we put out pieces of paper on the Arctic while the Russians are literally moving very aggressively in the Arctic.

I will just throw this out for both of you gentlemen. You know, I was a little disappointed to see Expeditionary Force 21 had, I do not think, a single sentence on the Arctic. And the Marine Corps, as you know, General, has a proud history of being the kind of northern flank protector in terms of Norway and other places in previous OP plans.

What are the thoughts on the Arctic, and are there any thoughts with regard to the Navy's budget to have an icebreaker? It is going to be a critical area. The Russians are eyeing it and moving into it, and yet we seem to be, at least from the Army's perspective, looking at removing combat brigades from Alaska, which I think would send a really, really bad signal to Vladimir Putin and others. So if you wish to comment just on your thoughts on the Arctic, both of you gentlemen.

Sorry, Mr. Chairman. I went a little long.

General GLUECK. If I could on Expeditionary Force 21, when we wrote the document, we knew that it was going to require updates, and our plan is to do updates annually here and we have got one that is due to the Commandant here within the next few months. So that is one of the updates I am sure that we will put some retention on.

I was just out at the Mount Warfare Center here about just a couple weeks ago. And that is where we do a lot of our cold weather training up there. And one of our companies was actually coming out of the field from being up there for about 10 days and looking at the equipment. And I had an opportunity to talk to the com-

mander up there as well and about the equipment that they have. And quite frankly, we need to do better. He is the actual advocate for cold weather training, and so I tasked him to make sure that he looks at what we need to be able to update ourselves to be able to have a good capability, a solid capability in cold weather operations and the training what was going to be required from the doctrine.

Senator SULLIVAN. Thank you.

Senator WICKER. Senator King?

Senator KING. Thank you, Mr. Chair.

First, I would like to associate myself with your comments both today and yesterday about Afghanistan. It would be absolutely tragic if we squandered the success that we have achieved and that the Afghan people have achieved by prematurely pulling out according to some date on a calendar. To me it is equivalent of fumbling on the 5-yard line. With a modest additional investment and particularly of authority to the troops that are there, I think we can secure a really significantly brighter future for the people of Afghanistan. So I agree.

Also, in terms of the Arctic, we have one heavy icebreaker, Coast Guard. We have one that is old that is essentially out of service, and one medium icebreaker. And that is the highway of the Arctic, if you think about it. And I agree with the Senator from Alaska. This is a major area where the Russians are moving very aggressively, and I think we need to take account of that, but also we just need to take account of the importance that this region is going to have both in terms of energy, commerce, trade, transit. They may not get all the way to Mississippi, but it is important to the entire country. So I agree with that.

Mr. DEE, how much do the complex and arcane rules of procurement drive up the cost of a given piece of equipment? Procurement is an issue that the whole committee is concerned about particularly in these tight budget times. And my sense is that it is so complicated and arcane and so many rules that have to be followed that it ends up—that is how we end up with devices that cost twice as much as they should.

Mr. DEE. Sir, there are a lot of rules, and there is a lot of oversight. Just as background, I am aware that the Secretary yesterday showed our DAU chart for the acquisition for how that works.

Senator KING. Yes. It would have made Rube Goldberg ashamed.

Mr. DEE. Yes, sir.

And those rules reflect both statute, regulation, and policy. So some of it begins here with statute. Some of it gets translated into regulation, and some of it becomes policy within the Department. All of those rules at whatever level we are putting them in are there to reduce risk in some way. There were instances in the past where we had overrun programs and waste. So everything that is in there was largely the result of lessons learned, that somebody is trying to make the system better by reducing risk and providing more oversight to make sure that the Department does well.

Senator KING. The road to hell is often paved with good intentions.

Mr. DEE. Yes, sir. So that is part two.

So all of these rules are in there to reduce risk, but there is also operational risk that we have to be able to balance. The rules that are in place are to reduce the risk to the U.S. taxpayer on wasting dollars. There is risk to the Marine Corps, to the operational forces of not getting capable equipment out there, timely equipment. We demonstrated during Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) that we can deliver equipment quickly. We can deliver it capably, but there is a cost that comes with that and there is a little increased risk on the cost side of it in order to reduce the risk on the operational side and on the schedule side. So there is a way to do that.

Again, back to the Secretary's chart that he showed yesterday, there are three parts to that, three layers of that. There is a requirements side. There is an acquisition side, and there is a programming and budget side to it. The best way and what we have begun doing within the Marine Corps—the best way to reduce that risk and to get things done is to have early collaboration between those three communities so that we are not pursuing very difficult and unachievable requirements so that the requirements community is aware of what is actually within the art of the possible, and that is collaboration with our engineers with the acquisition community, collaboration with the budgeteers and the programmers to ensure that what we are building will be good enough to meet the requirements but we are not stretching so far that we are introducing tremendous risk in terms of performance or schedule or cost.

So the acquisition community would very much like to see reduced oversight and rules at whatever level, statute, regulation, policy. But we also know we can mitigate the risk that is involved in that process somewhat by better collaboration early on in the process.

Senator KING. Well, I am not suggesting that we should diminish oversight, but I just think it might be a timely exercise to go back and look at this structure that has been built up and accreted over the years and see if there is a way to simplify, make it a little more straightforward because the taxpayers are paying the cost. And again, as you say, it is a matter of weighing risk against cost.

Mr. DEE. If I may, sir, on that. Within the last iteration of our 5000, the DOD policy on acquisition, Secretary Kendall included a enclosure in there to talk specifically about how to do things more quickly, rapid acquisition. And the trigger for that is some sort of urgent need, and if there is an urgent need, then the gates are opened to allow you to take a little more risk in terms of all of the policy that is in place in order to be able to deliver a capable system quicker to the force.

Senator KING. I have the greatest respect for Secretary Kendall. I think he is one of the most able people we have.

According to the budget documents, most of your equipment maintenance, General, has come out of Overseas Contingency Operations (OCO) funding, and OCO funding is almost certainly going to go down. Does that negatively affect your ability to maintain your equipment?

General GLUECK. It will have an impact, yes, sir. Currently our request for OCO for 2016 is at \$1.3 billion. But we are also in the

process of also resetting our equipment that we are bringing back from Afghanistan, and that has been a good news story. I would have to say that our marine logisticians have done yeoman's work there in being able to get all of our equipment accounted for and get it back.

I would like to talk just for a second on that. About 60 percent of it has been reset today. Another 40 percent is in work. And we expect to have all that equipment reset by 2016.

So we think within the budget is \$365 million to go ahead for a reset, but we will also be looking at OCO funds to make up any differences.

Senator KING. Thank you.

Thank you, Mr. Chairman.

Senator WICKER. General Glueck, Darwin is farther away from our most likely hotspot in Alaska and it is not operational half the time. Was Darwin a good decision?

General GLUECK. I think that Darwin was a good decision at the time because we wanted to increase our presence down in that particular region of the Pacific, and I think that is going to meet our objectives in the future. I think there are ways that we can probably mitigate the distance. Out in III MEF, sir, we do about 75 exercises, activities, operations in any given year, for example. One of the largest exercises we do is in Cobra Gold in Thailand, for example. And that is in that general vicinity as well. If you look at the number of forces that we send down there for that particular exercise, which is the largest joint combined exercise in the world today, there is mitigation in risk that you accept just sending them down there as well. I think as long as we have the strategic lift tied to those marines, then we will be able to go ahead and move them to the right place at the right time.

Senator WICKER. How soon can you get those troops to Korea?

General GLUECK. Well, it would be a function of strategic lift to be able to get it down there. So it would be a prioritization within the theater commander to say that I want C-17 lift to go down to Darwin to pick our marines and move them up to Korea. But they would not be the first responders, sir. They would be the marines that are coming out of Okinawa and the 31st MEU would be your first response.

Senator WICKER. But how soon?

General GLUECK. How soon? I would have to take that for the record and actually put a little bit of thought to it. But I would say that you are not talking weeks. If strategic lift is identified, you are talking in a matter of about 48 hours.

[The information referred to follows:]

Your question regarding the decision to place Marines in Darwin, Australia, considering the considerable distance and travel time to the Korean peninsula, is a good one. To understand our force posture in the Pacific, we must understand the variety of missions in that theater and the troops laid against each one.

To your direct question, assuming no advanced notification or preparation, it would take up to two weeks from the identification of need to Marines from Darwin arriving in Korea. However, as I mentioned, based on prioritization and availability of strategic airlift assets, actual transit time is closer to 48 hours. However, the mission of the Marines assigned to Marine Rotational Force-Darwin (MRF-D) is not oriented exclusively toward responding to a contingency on the Korean peninsula. The MRF-D as an assigned force to III Marine Expeditionary Force (MEF), is just one unit available to respond to contingency on the Korean Peninsula. In fact, the MRF-

D is focused primarily on Theater Security Cooperation (TSC) exercises to build partner capacity and interoperability throughout the South Pacific and to respond to crisis or contingency operations in that region. This mission has been successful and we are looking to expand the size of that unit, and increase the scope of their mission. It is true that parts of Alaska are geographically closer to Korea than Darwin is, but basing the unit there would present additional challenges to the execution of their primary mission.

The Marines of the 31st Marine Expeditionary Unit (MEU), 4th Marine Infantry Regiment, and 12th Marine Artillery Regiment are a combination of forward stationed and rotational forces available for immediate crisis response. These units maintain readiness and availability to meet the deployment and employment requirements associated with the Korea operation and contingency plans. They are based in a more geographically advantageous position, have strategic lift assets assigned to them, and focus on training and equipping for that mission. In an unclassified setting, I can confidently say that their response time is significantly shorter.

Having all of these units as well as the majority of III MEF forces west of the International Date Line allows us to service the myriad missions that this enormous theater requires.

Senator WICKER. And what is the plan for monsoon season?

General GLUECK. Well, for monsoon season, we do not send the marines down there.

Senator WICKER. All right.

General GLUECK. They look for other training opportunities within the Pacific region.

Senator WICKER. Mr. Dee, I mentioned concerns about substituting wheeled armored personnel carriers for amphibious track vehicles. Could you respond to that, and could you respond to this statement? The Marine Corps has evolved over the last 3 years from a cancelled EFV to a similar concept for high water speed ACV. Studies conducted during that time by the Marine Corps and armored vehicle makers have led to the conclusion that while high water speed is technologically feasible, it remains unaffordable. So instead, we are going to pursue the 1.1 version of ACV. Would you respond to that and enlighten the subcommittee?

Mr. DEE. Yes, sir. Let me take the second part first.

So EFV was cancelled back in 2011 for affordability and some concerns about reliability that then translated into affordability issues. Following the cancellation, ACV was initiated. We did an analysis of alternative to see what potential solutions we may have for the replacement of the AAV. A very in-depth study was initiated. It was conducted by the executive director of MARCORSYSCOM, along with scientists, engineers, operators, budgeteers, again the collaboration I talked about earlier that took place over the course of a year. We looked at all of the trades would be required in order to produce a high water speed vehicle. We have demonstrated it is technologically feasible. We have prototypes from the EFV that are available to ride and get up on plane and go very fast. But the trades that were required to get there, not just in terms of cost, but largely in terms of the protection levels that you can get—

Senator WICKER. Where can we see one of those?

Mr. DEE. They are out in San Diego, Camp Pendleton, sir. We have prototypes.

Senator WICKER. Great.

General GLUECK. If I could. We also have one out—or a couple out at the Nevada facility, out in Nevada.

Mr. DEE. So we do that extensive study and we looked at the trades, and high water speed is achievable. High water speed would require us to accept lesser levels of protection, and with the lessons learned from Afghanistan and Iraq with improvised explosive devices, that was not a trade that the Marine Corps was willing to make right now. It also requires lesser levels of lethality in terms of the amount of weight. It all comes down to weight and how much Reserve buoyancy can you get out of a vehicle. So how much more armor can you put on it? How many more weapons can you carry? How big of a weapon can you carry, et cetera? So with all of that and the imperative to replace the AAV, the decision was made in order to focus on the, as General Glueck had mentioned earlier, the ground mobility capabilities of the vehicle, and we will forego for now the high water speed capability in order to begin having a suitable replacement for the AAV, with a decision down the road, technology investments to continue in looking at how to mitigate some of those trades that we had to make, a decision down the road, a decade down the road probably on revisiting the high water speed vehicle.

On the capabilities of the wheeled vehicle versus the track vehicle. So a lot has changed in time since the AAV was designed and built. The capabilities from heavy industry on wheeled vehicles has improved tremendously with things like independent suspension and variable inflatable tires, et cetera, and all kinds of computer controls. We have tested. We had the Nevada Automotive Test Center build a demonstrator vehicle that we actually tested in actual conditions for an 8-wheeled vehicle to serve initially as an MPC prototype and now is an ACV prototype. Performance was very good, and for a medium-weight vehicle, it was the equivalent basically to what we would be able to get out of a track vehicle. It may not be as maneuverable or as mobile in off-road conditions in certain cases as is the M-1 tank, but it is as certainly as maneuverable as we are going to get in that class of vehicle.

Senator WICKER. So it does not erode our capability.

General GLUECK. No, sir. It actually improves our capability, sir, from an operational perspective. You know, we found, if I could—what we found that high water speed was technologically feasible, we could get a track vehicle and get it up on plane and it could go 25 knots. But all the development that we were putting into it—we were trading away operational capability ashore. So we were designing a vehicle that was optimized to operate on the water but not optimized for 90 percent of its mission that was going to be ashore. And I am convinced that the decision that we have made to move forward on the ACV wheeled vehicle is the right answer for us to be able to provide the greatest capability in terms of maneuver, fire power, as well as survivability to our marines ashore.

Senator WICKER. I did not know there was enough water in Nevada to test something like—

General GLUECK. They do most of the ground testing there, and then actually the water testing is done around the coastlines. But I have seen some of the water testing by a couple of the major manufacturers, and so far they have been very good. They have actually focused not on just the 1.1 version. They have really focused their builds on the 1.2 version because they want the entire con-

tract. And that would be able to give us the capability to have the same or better swim capability than the AAV currently has.

Senator WICKER. I would like to see that.

Senator Blumenthal?

Senator BLUMENTHAL. Thanks, Mr. Chairman.

I want to shift a little bit in terms of modernization to one of the key challenges in my view, although it may not involve hardware in the most direct sense, and that is the downsizing of our force and how we develop and retain the key skills that are necessary to operate the new machinery that we are discussing here. How do we keep the best and the brightest at a time when the Marine Corps is going to go from—I am bad on numbers, but I think it is 202,000 down to 182,000, more or less, and go from, obviously, a wartime mission to one that intermittently involves conflict but not the same kind of ongoing constant challenges, which may have an impact on the interests of our marines to stay in the Corps. So that is, I realize, a broad question, but I would welcome any thoughts you have about it.

Mr. DEE. Let me talk about the civilian workforce, and I will defer the marines to General Glueck.

So we do have critical skills especially in our maintenance world in our depots for civilians. The Marine Corps maintains two depots, one in Barstow, California, one in Albany, Georgia. And we need to maintain a certain level of work to ensure that we have the core capabilities necessary, the skills in order to maintain and reset the equipment that we talked about earlier. So the current program has sufficient work going into those two depots in order to do that through the FYDP. Of course, we will become challenged, as in everything else, should those numbers diminish tremendously and we cannot maintain the maintenance. So we are concerned about the technical skills, the craftsmanship of our civilian workforce, especially in terms of maintenance, and we are working to maintain the core levels of work at those two depots.

General GLUECK. Thank you for that question, sir.

You are correct. We are coming down from 202,000. And the announcements that we have done is that an optimized Marine Corps to be able to meet crisis response and contingency response challenges that we face today and to be able to maintain a one-to-three dwell for our marines—so every 7 months you are gone, you have 3 months back before you go again—is at 186.8. Currently for fiscal year 2016, we are looking at a force that is going to be at 184,000. In fiscal year 2017, we will be continued down to 182,000.

So what that means to the force is that we are going to be on—many of our low-density, high-demand capabilities we have out there, the marines that are part of that—they will be on one-to-two or less dwell. So some of our B-22 squadrons, some of our deploying infantry battalions, and those that are deployed the heaviest will be at a one-to-two dwell.

The Commandant's focus is going to be on maintaining quality over capacity. So, you know, he is looking to make sure that we can maintain the right leader-to-lead ratios as we downsize to make sure that we do not give up—if we give up capacity, but we make up for it in quality. And so, like I said, he is willing to focus on the Marine Corps is only going to be as big as we can be good.

Senator BLUMENTHAL. And let me drill down a little bit if I may. As a personnel management function, how does the Marine Corps plan to accomplish that goal?

General GLUECK. Well, there is an effort ongoing right now to make sure that we get the right leadership and at the right levels. For example, one of the critical areas that the Commandant is most concerned with, both in the infantry battalions and our flying squadrons, is where are the sergeants. Where are those mature men and women that we need to lead the infantry squads as well as to be the critical quality inspectors that we have within the squadrons and the mechanics? There are a lot of requirements out there, and what we are finding right now is that probably the majority are not where they need to be for one reason or another. And so he has got an effort on track right now, and he is personally involved to make sure that we can identify how do we improve this capability in the leadership and get them in the right place.

Senator BLUMENTHAL. Thank you. Thank you very much. Thank you both for your service.

Senator WICKER. Thank you, Senator Blumenthal.

Senator Hirono?

Senator HIRONO. Thank you.

I know we had quite a bit of discussion regarding ACV 1.1. From what I got from the discussion is that what I have been told was more of an interim system, the ACV 1.1, because it will not be in the strict sense a fighting vehicle. It will have limited swimming capability. It may not carry a full infantry squad because the previous vehicles would carry 14 marines, and the ACV 1.1 will carry 10 and on an equal lift basis weigh more and take up more space on transport ships.

So I did have a question about how the Marine Corps is approaching the tension between capability and affordability between the tracked ACV and the wheeled what I have been informed is a less capable ACV 1.1. Would you like to just go over that again for us briefly?

General GLUECK. I could. Let me talk about the capability of tracks versus wheeled technology. Out at the Nevada test facility—and I would invite any of the members that would like to come out to go out there—we have every combat vehicle that we have in the inventory, to include the expeditionary fighting vehicle and then the prototypes. In fact, the Commandant was just recently out there a little bit over a month ago and had an opportunity to experience the ride and go through some pretty rough terrain and see the mobility and then the capabilities of the ACV in particular.

I have been out there about four times now. And we have had five different vendors that have brought their vehicles out there that we have had an opportunity to actually experience the ride, maneuverability, and see the capability that they have.

And from all the analysis that we have done, we are not giving away any capability whatsoever by going from track to wheeled technology. Actually we are gaining capability. We are gaining survivability. So with an AAV, for example, you are going to have a survivability that is going to be less than 1.0. You know, these ACV's, for example, with the technology, the V-hull and double V-hulls that they have underneath, their ability to go ahead and raise

and lower the height of the vehicle, you are going to get survivability in excess of 2.0. So it is double the survivability. These vehicles will capability—because of the independent drives that they have on them, will be able to go out and hit an IED and actually blow off, say, two wheels on one side of the vehicle and continue to drive and drive out of the threat area. So I think our marines are going to be very well served with the amphibious combat vehicle.

Now, to get to the decision, if I could, of how we went to 1.1, what we did was, you know, we had a program out there several years ago. It was the Marine Personnel Carrier Program that we were working with, and we had to cancel that due to affordability as well because it was competing against the EFV. And the decision was made to go ahead and stand that program down. It was not cancelled but we stood it down.

And so what we have focused on for 1.1 was how fast can we get a good vehicle out there that is going to be good enough that is non-developmental and be able to meet our basic requirements. And that is what we looked at for 1.1 so that enabled us to go ahead and streamline the acquisition process. So we did not have to start with a blank sheet of paper. We were able to start at where we were due to a lot of support from Mr. Kendall and others. We were able to save several years there as we moved forward.

So the initial buy, which will be about 204 vehicles, are just focused on being personnel transporters. And right now the threshold for that was for 10 because that is what the MPC was. But what we are finding is that the industry is really focused not on the threshold for 1.1. They are focused on the objective of 1.1 and the objective of 1.2 because they want the full contract. So a lot of them—instead of focusing on just putting 10 seats for the 1.1, most of them are focused on 12 to 13 seats, for example. The swim quality—instead of focusing on the lower threshold requirement of, say, a level of 2 feet significant wave height, they are actually focusing on building the vehicle to be at 3. So we are actually going to be getting a more capable vehicle from the beginning. The 1.2—the next follow-on was to go ahead and address some of those improvements we wanted to have but also focus on mission-specific capabilities such as command and control, logistics, recovery vehicles, and perhaps even fire power.

Senator HIRONO. So, General, it would be inaccurate to think of the ACV 1.1 as a less capable than the tracked ACV from everything you just told us.

General GLUECK. That is my assessment, yes, ma'am.

Senator HIRONO. General, I assume you are familiar with the advanced amphibious assault vehicles that China appears to have developed. One version is a tank with a 105 millimeter gun. The other is an infantry fighting vehicle with a 30 millimeter cannon. Both are reported to be high water speed vehicles like the terminated EFV. China is also building its first set of large amphibious ships that compare to the United States classes like the LPD-17. What is your assessment of the Chinese amphibious assault vehicles and how do you rate their performance in the water, their fire power, mobility, and protection levels? Mr. Secretary, if you would like to answer.

Mr. DEE. Yes, ma'am. I mentioned earlier the exhaustive study that we had done last year over the course of a year with all the trades on all of the different capabilities we were looking for in terms of protection, water speed, personnel carrying capacity, lethality, et cetera. As part of that study, we looked at all of the vehicles that are being manufactured in the world today, to include those Chinese vehicles that you mentioned. And the advertised capabilities—our assessment—exceed their actual capabilities in a lot of cases, including the water speed claims that they have had. So we took a look at those, worked with the intelligence community to be able to gain an assessment of where these different vehicles stand. And we think we accepted the right path, and we do not think there is a magic formula for building in high water speed, very well protected and very lethal amphibious combat vehicle.

Senator HIRONO. Thank you.

Senator WICKER. General Glueck, before I turn to Senator Sullivan for a second round, since Senator Hirono has brought this up again, the wheeled armored personnel carriers will have to be lifted ashore. And the amphibious track vehicles could swim to shore. How much of a concern is that?

General GLUECK. The 1.1 version of the ACV was designed to be able to swim from shore to shore. Okay? But we are finding that it actually could much better than that.

Senator WICKER. So that is not a concern.

General GLUECK. Well, if I could, sir.

Senator WICKER. Okay.

General GLUECK. What we are finding is that in fact the vehicle is going to be able to go from ship to shore or from another connector to shore. What we have found is that with the current A2AD threat, for example, when we were looking at high water speed for the expeditionary fighting vehicle, we envisioned that a fleet would be—probably the sea base would probably be 25 miles off the coast, and they would be able to probably adjust the sea base to bring it in to be able to launch so that 25 knots for a vehicle meant that the Marines were not going to be in there longer than about 1 hour.

What we are finding today is that with the threat, depending on where you go, that sea base may be actually pushed out further. So what we find is that even a self-deploying vehicle is probably not going to be able to launch from 65 nautical miles. It is going to have to have the assist of some high speed connector.

It is really, like I said, a family of vehicles in how we bring these together. Even the current AAV, if I cannot get any closer, I am going to go ahead and put those maybe on a joint high-speed vessel, for example. So the joint high-speed vessel could pick up, say, 25 AAV's or ACV's because we can do at-sea arrival in assembly now with some of these more capable ships, and then be able to go ahead and maneuver that force with high speed and range to be the place that we want to go ahead and apply that pressure. So what we see is that in the future, connectors are going to be highly critical for both self-deployers as well as those that maybe are not self-deployers, such as like the joint light tactical vehicle.

Senator WICKER. Thank you for clearing that up. And Senator Sullivan, I apologize for making you wait. You are recognized for a second round.

Senator SULLIVAN. Thank you, Mr. Chairman.

Secretary Dee, I wanted to follow up on the Arctic question that I had asked previously and, again, kind of the broader perspective from the Navy's standpoint in terms of not only in military and seeing what the Russians are doing, which again is very clearly some concrete, significant moves into the Arctic with a whole host of infrastructure building, new bases, new brigades, new ice-breakers. I mean, it is a move. And we are doing nothing essentially. We have a 13-page Arctic strategy that nobody seems to be paying attention to in my view.

And then there is the whole issue that is critical to the Navy's overall function in terms of keeping sea lanes open and commerce. You know, we obviously have done an incredible job over the decades doing that, but we have a new sea lane and lane of commerce that is opening up in the Arctic, as you are well aware.

Yesterday—I mentioned this, the question about icebreakers for the Navy. And by the way, all the SecDef, Chairman of the Joint Chiefs—they are all saying, hey, we recognize this is a pretty significant development, and we need to pay attention to it. And yet, when I asked about icebreakers and looking at that, the Chief of Naval Operations (CNO) essentially said, hey, that is not our department. That is Homeland Security. That is Coast Guard. I have the utmost respect for him and the rest of the people serving in the Navy and the Marine Corps, but I thought that was kind of a bureaucratic answer. I mean, these are leaders of the country.

You do not have to answer it here, but I would like the Navy collectively to get back to us and just answer the simple question. Is it in the national interest of the United States, given the developments in the Arctic, to have an additional heavy icebreaker? I am not interested in whose budget it is or, sorry, that is not my—the issue of national security is everybody's issue. And so I would just like an answer that is not bureaucratic that answers the question, and if you can get back to us on that, maybe check with the CNO on that issue. I think that is important.

Mr. DEE. Yes, sir. We will coordinate with OPNAV staff and get back to you.

[The information referred to follows:]

Current Navy capabilities are sufficient to meet near-term operational needs. The Navy recognizes, however, that the opening of the Arctic Ocean has important national security implications and fully supports the U.S. Coast Guard's (USCG) efforts to modernize its icebreaking fleet and increase Arctic capabilities. The USCG Cutter POLAR STAR's recent reactivation will provide the U.S. with heavy icebreaker capability for about another seven to ten years. POLAR STAR, along with the medium icebreaker USCG Cutter HEALY, provide the minimum capability necessary to address the Nation's near term icebreaking needs and will provide the USCG time to assess longer term national needs and requirements.

In accordance with the U.S. Navy Arctic Roadmap, in the near-term the Navy will refine or develop the necessary strategy, policy, plans and requirements for the Arctic Region. Additionally, the Navy will continue to study and make informed decisions on pursuing investments to better facilitate Arctic operations.

Senator SULLIVAN. Great.

General Glueck, I wanted to follow up on the issue of training. You mentioned you were at Bridgeport recently, and I think that

that is an amazing place for training for all U.S. military, whether it is the Marine Corps or others. You know, certainly one of the hallmarks of the Marine Corps—and Bridgeport is an example of that—is tough, severe training. You know, there is a lot of discussion I think on these committees on the best way to take care of our troops. I think the Marine Corps has really focused on the best way to take care of our troops is train them as hard as they can so when they have to go fight wars for the country, they come home alive. That is the best way to take care of our troops.

You know, the mantra that is the Army and when you talk about Korea, no more “Task Force Smiths,” I think that is always important to keep that in mind because as a country, we have not done a great job historically of downsizing. We have forgotten the importance of training.

I just wanted to ask you, given your previous positions and your current role, do you see the focus even in severe budget times on hard training closed with “destroy the enemy” that is the hallmark of the Marine Corps—is that something that we are still able to do with these budgets? And also, do you get interference in some ways from civilians who maybe have a different focus? Maybe they are focusing on other areas because I think sometimes that tough training is lost on some people on how important that is.

And then from a different angle, I will just mention something in my own personal experience as a reservist who relinquished command recently of a unit in the Reserves. There does seem to be an increasing amount of mandates that come down to units, particularly on the Reserve side. You need to do a class on this. You need to do a class on that. Do you think we are kind of overwhelming our units with mandates from higher headquarters and forgetting that there is only so much time to actually focus on the infantry skills that are the hallmark of the Marine Corps that are so important, not only the Marine Corps but to the defense of our Nation?

General GLUECK. Well, Senator, thank you very much for that question. And training continues to be one of our hallmarks.

You know, I had an opportunity. Yesterday I had breakfast with Golf Company at The Basic School (TBS). They graduate here in about 10 days. And we made the point to them just how important training is, and they have just come out. They call themselves like the frozen company because they have just been through 6 months of some pretty severe conditions.

But it really is about training, realistic training, and we put a very high priority on that to make sure that all our units get the training that they need. So we are not going to back away from that.

As far as any kind of interference, the only interference you have sometimes, you know, depending on where you are training. We have training challenges even in Okinawa. We have training challenges wherever we go in the world. But we can work around them. We are able to do that and still be able to accomplish not only our individual marine’s training requirements, the unit training requirements, but also our joint and coalition training requirements as well.

So I feel good at where we are. We are going to continue to put resources towards that, particularly in the areas of live and virtual training.

Senator SULLIVAN. How about mandates on the—

General GLUECK. We call it “rocks in the rucksack.” We keep giving them more rocks and putting them in the rucksack.

Senator SULLIVAN. The rucksack is getting heavier.

General GLUECK. It is getting heavier and heavier. In fact, I just put out an all Marine notification here just within the last couple weeks giving the commanders the ability to go ahead and reduce some of those requirements. The Commandant has now said that as commanders—you know, we hand-select you to be a lieutenant colonel, colonel command, you know, general officer commanders—that you will have the ability to go ahead and prioritize what some of these that you have to comply with, as long as they are Marine Corps standards or Marine Corps rules, and others that we can go ahead and put a lower requirement.

Senator SULLIVAN. Great. I am really glad to hear that is happening.

Thank you.

Senator WICKER. Senator Blumenthal?

Senator BLUMENTHAL. Thanks, Mr. Chairman.

I know that this question will sound heretical and maybe even disrespectful. So please forgive me.

Senator WICKER. But you have our attention.

[Laughter.]

Senator BLUMENTHAL. If I am explaining to a Connecticut constituency or constituent who is wondering about why we are doing amphibious assault vehicles, the 1.1 and 1.2, why we are thinking about that type of vehicle—we have all seen in the movies and so forth the use of these vehicles in the past. Where right now could you envision—if I want to give an example of where these vehicles might be useful, might be essential, can you give me some scenarios, even if you cannot refer to a country by name, how I would explain to my constituent the need for this vehicle as a priority? And you have identified it as a priority for the Marine Corps today.

General GLUECK. Well, thanks for that question.

You know, when you look at our forward-stationed, forward-deployed marines today, those are the ones that the combatant commanders are going to turn to when you say, hey, I got a crisis, and you are going to address that crisis with today's force and you are going to do it today. So it is what you have out there to be able to operate. So those forces are going to be operating across the entire range of military operations. So these vehicles apply whether you are doing humanitarian assistance, disaster relief when the port is closed or has been destroyed that you have to come ashore. You know, we have seen that even in our own country down in New Orleans where we had some of our amphibious tractors that actually were saving lives for people that were stranded. So I mean, they have applicability across the entire range of military operations.

The example that you use of, let us say, an Iwo Jima, Tarawa that is burnt into our brain housing groups about amphibious assault—that is not the way we want to conduct business. Okay? If

you look at it from a renewable warfare philosophy perspective and also our ship-to-objective maneuver concept that is out there, it is about finding the gaps in the seams within the enemy's defenses out there, and that is where you want to attack.

So, for example, when I gave the example of the joint high-speed vessel, we still do not have a ramp to be able to launch from, but we got S&T efforts looking at that. But instead of the enemy thinking that you are going to be coming at the center of a beach, or whatever the objective is, we are going to go ahead and maneuver around. When we find those gaps in the seams where they are weak, because they cannot be strong everywhere, if you refer back to Sun Tzu and whatnot, we will find those and there will be niches within that armor that we are going to be able to exploit.

Senator BLUMENTHAL. Would it be against an enemy that is technologically disadvantaged because in the world of drones and other kind of air threats to amphibious combat vehicles that are essentially exposed for some period of time, I would assume that a more modern equipped enemy would have some capability to endanger those forces?

General GLUECK. Yes, sir. It comes down to setting the conditions. And if you are going to do an amphibious assault operation in a major amphibious campaign, we are not going to be working for the Marine Corps. We are going to be working for our joint force commander. And so we are going to be looking at all the capabilities he has throughout his joint force that will be able to help us to set the conditions that are going to be required because there will be certain conditions that are going to be required.

We just did a war game, our service war game, down in Norfolk 2 weeks ago and looked at in a couple scenarios what would be required to be able to set conditions for us to actually move an amphibious force in close enough to shore to be able to launch. And we have the capabilities within the joint force and within the naval force to be able to set those conditions. But it is over a certain place at a certain time, not across an entire theater, but to be able to accomplish the military objectives that we will have.

Senator BLUMENTHAL. Thank you very much.

Senator WICKER. Thank you, members of the subcommittee. And thank you to our distinguished witnesses.

Senator Hirono and I have consulted and agreed to submit the remainder of our questions for the record. Other members will be given that opportunity.

And so if there is nothing further—

Senator HIRONO. Mr. Chairman, if I could just make one comment. I know that the marines represent just about 6 percent of the DOD budget, and so you really do have to leverage the investments of other services. And I commend you for those efforts and collaborating and making sure that you get the resources you need in collaboration with our other services so that you can meet your mission. I want to thank both of you for that.

Senator WICKER. Thank you, Senator Hirono.

I think it has been a very good discussion. I am very impressed with our two witnesses.

If there is nothing further, this hearing will be adjourned. Thank you.

[Whereupon, at 10:55 a.m., the subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

AMMUNITION

1. Senator AYOTTE. Mr. Dee and Lieutenant General Glueck, on March 10, 2015, the Commandant testified specifically about a shortfall in TOW missiles, Javelin missiles, and HiMARS rockets. How critical is this shortfall? What are the consequences of that shortfall?

Mr. DEE. and Lieutenant General GLUECK. The fiscal year 2016 budget request underfunded the procurement of some ammunition accounts in order to fund higher service priorities. Based on the fiscal year 2016 submission, planned procurement, and annual training expenditures with no adjustment in future budgets the Marine Corps, by fiscal year 2020 the inventory average of all TOW missile variants will decline to 47 percent; Javelin Missiles will decline to 37 percent of required inventory and; HB11 Guided Missile Launch Rocket System-Alternate Warhead will only reach 24 percent of planned procurement.

2. Senator AYOTTE. Mr. Dee and Lieutenant General Glueck, does the Department's fiscal year 2016 budget request fully address this shortfall? If not, what kind of shortfall remains even if Congress fully funds the Department's 2016 request?

Mr. DEE. and Lieutenant General GLUECK. No, the DOD's fiscal year 2016 response does not fully address the shortfall. However, the Marine Corps has included both Javelin and TOW missiles on its FY16 Unfunded Priorities List (UPL). If the UPL becomes funded, it will still not make these accounts whole, but it does bring them to an acceptable level of risk to account for contingency response, crisis response, and training usage. It included a request for \$77.5M for Javelin and \$145.5M for TOW missiles. These funds will replace expiring inventory as well as those expended in training and contingency operations, and manage missile inventory over the its life cycle to ensure sufficient inventory is available for training and operations.

To expand on the above information, the fiscal year 2016 budget request underfunded the procurement of some ammunition accounts in order to fund higher service priorities. Based on the fiscal year 2016 submission, planned procurement, and annual training expenditures with no adjustment in future budgets the Marine Corps, by fiscal year 2020 the inventory average of all TOW missile variants will decline to 47 percent; Javelin Missiles will decline to 37 percent of required inventory and; HB11 Guided Missile Launch Rocket System-Alternate Warhead will only reach 24 percent of planned procurement.

Units will continue to deploy fully trained, often at the expense of home station unit training. MEU and SPMAGTF Landing Force Operational Reserve Materiel (LFORM), the stocks maintained aboard selected amphibious warfare ships to provide support for embarked troops in contingencies, are complete to meet our mission of crisis response. However consistent underfunding and expenditure of the War Reserve to fulfill training requirements has significantly impacted our ability to respond to the most stressing contingency scenario. Without change by fiscal year 2020, the Marine Corps would not have the inventories required to support the most stressing major contingency.

HIGH WATER SPEED TECHNOLOGY R&D

3. Senator AYOTTE. Mr. Dee and Lieutenant General Glueck, in your prepared joint statement, you wrote that "a science and technology portfolio is being developed to explore a range of high water speed technology" for the Marine Corps. We have a company in New Hampshire—Juliet Marine—that has developed at their own expense a vessel with a cutting edge propulsion system that utilizes advanced applications of super cavitation technology. Are you both aware of Juliet Marine's Ghost boat and its super cavitation propulsion system?

Mr. DEE. and Lieutenant General GLUECK. The Marine Corps is aware of the GHOST vessel produced by Juliet Marine. At this time the Marine Corps does not have a requirement for this particular vessel.

4. Senator AYOTTE. Mr. Dee and Lieutenant General Glueck, have representatives from the Marine Corps met with Juliet Marine to learn more?

Mr. DEE. and Lieutenant General GLUECK. The Office of Naval Research (ONR), as the Navy and Marine Corps Science and Technology (S&T) agency, has met with

Juliet Marine on a few occasions, most recently in February 2015 to conduct an on-site review of current status of the Ghost vessel. Following those reviews ONR concluded that the design does not offer benefits beyond other Small Waterplane Area Twin Hull (SWATH) designs and incorporates engineering complexities that raise major concerns about reliability.

AMPHIBIOUS SHIP PROGRAM

5. Senator AYOTTE. Mr. Dee and Lieutenant General Glueck, the fiscal year 2016 budget seeks research and development funding for the LX(R) program and funding for a 12th LPD-17 class ship. If the Navy receives this research and development funding, the amphibious force will grow to 34 ships. Is 34 the right number of amphibs?

Mr. DEE and Lieutenant General GLUECK. The Chief of Naval Operations and the Commandant of the Marine Corps have determined the force structure to support the deployment and employment of 2 MEBs simultaneously is 38 amphibious warfare ships. Understanding this requirement, in light of fiscal constraints faced by the nation, the Department of the Navy has agreed to sustain a minimum of 33 amphibious warfare ships. However, that agreement did not account for the addition of the 12th LPD that Congress so generously provided which has been included in the 2016 Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels. The plan notes an increase of the minimum amphibious fleet force structure requirement to 34 ships, which will be reviewed during the next Force Structure Assessment. While the Department has accepted the risk associated with the fiscally-constrained force, worldwide COCOM demand is more realistically defined at about 54.

It should be noted that, the 34 ship force accepts risk in the arrival of combat support and combat service support elements of the MEB, but has been determined to be adequate in meeting the needs of the naval force within today's fiscal limitations. This inventory level also provides the needed capacity for a forward presence and a MEB/Expeditionary Strike Group (ESG) to respond to a crisis or contingency within 25 days.

6. Senator AYOTTE. Mr. Dee and Lieutenant General Glueck, what is the Marine Corps' requirement for amphibs?

Mr. DEE and Lieutenant General GLUECK. The Chief of Naval Operations and the Commandant of the Marine Corps have determined the force structure to support the deployment and employment of 2 MEBs simultaneously is 38 amphibious warfare ships. Understanding this requirement, in light of fiscal constraints faced by the nation, the Department of the Navy has agreed to sustain a minimum of 33 amphibious warfare ships. However, that agreement did not account for the addition of the 12th LPD that the Congress so generously provided and which is accounted for in the most recent 30 year shipbuilding plan, bringing the total to 34. Additionally, COCOM demand is more realistically defined at about 54.

It should be noted that, the 34 ship force accepts risk in the arrival of combat support and combat service support elements of the MEB, but has been determined to be adequate in meeting the needs of the naval force within today's fiscal limitations. This inventory level also provides the needed capacity for a forward presence and a MEB/Expeditionary Strike Group (ESG) to respond to a crisis or contingency within 25 days.

7. Senator AYOTTE. Mr. Dee and Lieutenant General Glueck, what is the impact on our national security and Marine Corps combat capabilities if we are short on amphibs?

Mr. DEE and Lieutenant General GLUECK. Shortfalls in amphibious warship inventory have multiple negative effects. This must be viewed in light of a two faceted problem, inventory and availability. A decreased inventory has negative effects on both overall capacity and maintenance. For instance, our existing inventory of 30 ships at current operational availability rates, due to maintenance, will only yield 21 ready amphibious warships. This puts the nation at risk of being unable to embark the 2 MEB assault echelon required for a forcible entry capability. Further, as ships are stressed due to increased use that would not be necessary at full inventory levels, they require more maintenance, which compounds the availability problem.

The Chief of Naval Operations and the Commandant of the Marine Corps have determined the force structure to support the deployment and employment of 2 MEBs simultaneously is 38 amphibious warfare ships. Understanding this requirement, in light of fiscal constraints faced by the nation, the Department of the Navy has agreed to sustain a minimum of 33 amphibious warfare ships. However, that

agreement did not account for the addition of the 12th LPD that the Congress so generously provided and which is accounted for in the most recent 30 year ship-building plan, which brings the number to 34. Additionally, Combatant Commander Demand is more realistically defined at about 54.

However, even this 34 ship force accepts risk in the arrival of combat support and combat service support elements of a Marine Expeditionary Brigade (MEB), but has been determined to be adequate in meeting the needs of the naval force within today's fiscal limitations. This inventory level also provides the needed capacity for a forward presence and a MEB/Expeditionary Strike Group (ESG) to respond to a crisis or contingency within 25 days. Shortfalls also negatively affect our ability to train. Conducting amphibious operations with our joint services is not just a matter of putting Marines on Navy ships. Those units must have the opportunity to operate with each other during their workup to establish relationships, tactics, techniques, procedures, and build interoperability.

QUESTIONS SUBMITTED BY SENATOR DAN SULLIVAN

ASIA-PACIFIC REBALANCE

8. Senator SULLIVAN. General Glueck, can you describe how the Marine Corps is continuing to support the Asia-Pacific Rebalance? Please comment on the Marine Air Ground Task Force operating from Darwin, Australia and the plan to base an additional Marine Air Ground Task Force in Guam.

Lieutenant General GLUECK. The Marine Corps is supporting the Asia-Pacific rebalance by continuing to work towards completing our distributed laydown which is more politically sustainable, geographically distributed, and operationally resilient than our current disposition. This includes continuing to work towards the establishment of MAGTFs around the Asia-Pacific, in Guam, and in Darwin Australia.

The Darwin rotational MAGTF will conduct the 4th rotation this summer, a Phase II deployment of about 1,200 Marines built around an infantry battalion with attachments including an Air Combat Element detachment and a Logistic detachment. The deployment will be from April to October, coinciding with the dry-season in Darwin. The end-state for the Darwin MAGTF is a rotational presence of a 2,500 Marine MAGTF, again built around a battalion with attachments, including a larger Air Combat Element and a Logistics Combat Element than the current Phase II rotation.

Guam will be home to 4700 Marines. Guam forces will be capable of forming a MAGTF. They will consist of 1797 PCS Marines and 2979 UDP Marines, and include the MEB Command Element. In addition, we will be building training ranges to support the readiness to the Marines who are permanently stationed aboard Guam, and those who are there as part of the Unit Deployment program. These ranges will also address a current PACOM shortfall of ranges in WesPac and be ~30 percent funded by the Government of Japan.

Progress continues on AAFB north ramp projects that facilitate current and future training and the eventual relocated ACE. We are on track for a Record of Decision in the coming months which will allow us to break ground on the Main Cantonment and Live Fire Training Range Complex.

MARINE ROTATIONAL FORCE-DARWIN

9. Senator SULLIVAN. General Glueck, can you update the subcommittee on Marine Rotational Force-Darwin, which will conduct exercises and training on a rotational basis with the Australian Defense Force? I understand the intent in the coming years is to establish a rotational presence of up to a 2,500-person Marine Air Ground Task Force in Australia.

Lieutenant General GLUECK. This year we will execute the fourth rotation of the MRF-D. This rotation will be our second Phase two rotation and take place from April-October 2015. Phase two consists of an infantry battalion with attachments, an Air Combat Element, consisting of 4 CH-53E helicopters, and a logistics detachment. All totaled the MRF-D will comprise approximately 1,200 Marines. While deployed, the Marines live and work at Robertson Barracks, and the Royal Australian Air Force base in Darwin, Australia. The MRF-D conducts unilateral training as well as bilateral training with the Australian Defense Forces. The MRF-D will participate in Talisman Saber 2015 and Exercise Koolingang during their deployment as well as other smaller exercises and training events in the Northern Territory.

Our goal is to establish a rotational presence of a 2,500 Marine MAGTF in Darwin. The gradual increase in the size of the MRF-D is dependent on a number of factors, facilities availability, a Marine Corps sourcing solution for the forces and

equipment as well as the necessary funding to enable the growth of the MRF-D. In working toward this goal we are continuing to work with Australia to ensure requirements will be met prior to incrementally deploying a larger MRF-D rotation and the establishment of the full 2500 Marine MAGTF.

ARCTIC TRAINING IN ALASKA

10. Senator SULLIVAN. General Gluek, given the increasing interest in the Arctic can you tell me what cold-weather and mountainous training the Marines already do?

Lieutenant General GLUECK. The Marine Corps Mountain Warfare Training Center (MCMWTC), Pickel Meadows, CA remains the only Department of Defense Command dedicated to the integration of warfighting elements at medium to high altitudes (MCMWTC elevations range from 6,800' to 11,200') in complex, compartmentalized, and mountainous terrain in all weather conditions utilizing military mountaineering skills in order to enhance a unit's ability to shoot, move, communicate, sustain, and survive in mountainous regions of the world. MWTC conducts unit and individual training courses to prepare USMC, Joint, and Allied Forces for operations in mountainous, high altitude, and cold weather environments in support of the Regional Combatant Commanders.

The Marine Corps conducts our service level exercise, Mountain Exercise (MTX), 6 times per year. This training is focused on an infantry battalion (1100 Marines) from individual skills through battalion operations. MCMWTC has an established table of organization (TO) and table of equipment (TE) to provide permanent support. As a part of the TO, on site instructors teach tactics, Marine Corps Cold Weather Infantry Kit (MCCWIKit), track plan, arctic sentry, defensive positions, long range movements, camouflage/concealment, casualty evacuation, patrolling, offensive operations, defensive operations and ambushes. The MCMWTC is the only command in the DOD, that teaches Animal Packing, Special Operations Horsemanship, and Military Skiing as approved formal schools Programs of Instruction (POIs). The MCMWTC can berth up to 1,100 personnel, and trains an infantry battalion with Air Combat Element and Logistics Combat Element support for each MTX. The MCMWTC conducts formal schools for individuals and battalion training in summer and winter mountain operations. The training emphasis is focused on enhancing overall combat capability. Marines at the Center are also involved in testing cold weather equipment and clothing, and developing doctrine and concepts to enhance our Corp's ability to fight and win in mountain and cold weather environments.

MWTC also runs 14 Training and Education Command (TECOM) approved Formal School POIs for military mountaineering. The graduates of these courses then apply their new skills as they execute special duties in support of their battalion. MWTC also incorporate Special Operation Forces (SOF), company sized OpFor, Intelligence, Surveillance, and Reconnaissance (ISR), and Simulated Close Air Support (SIMCAS) into every MTX. It's the largest formal force-on-force exercise in the Marine Corps.

11. Senator SULLIVAN. General Gluek, has any thought been given to training in the JPARC in Alaska?

Lieutenant General GLUECK. Yes, consideration has been made for training at JPARC. When the unique attributes that JPARC provides are required, we are enthusiastic in with working with other services to use training space that will allow us to leverage those opportunities. However, due to ranges, training environments, robust training aids which are already in place, and significant instructor staff capabilities we have found the Marine Corps Mountain Warfare Training Center (MCMWTC) to be an excellent option for our mountain and cold weather training.

Additionally, in light of today's fiscally constrained environment, MCMWTC has been our primary and most cost effective option. Any part of the 1stMarine Division, one third of the USMC's Ground Combat Element (GCE), can get to MWTC in a day. It is very costly to get an infantry battalion to Alaska, so much so that Army Rangers have been sending companies to our Mountain Training Exercise (MTX) at MCMWTC for the last year and intend to continue doing so for the coming years.

READINESS CHALLENGES

12. Senator SULLIVAN. General Glueck, senior Marine Corps leaders have mentioned that some of units are at an "unacceptable level of readiness. What does that mean, exactly, for ground combat battalions, aviation squadrons, logistic units and command elements? Can you give us some context in terms of readiness of personnel, equipment, training, etc?

Lieutenant General GLUECK. The Marine Corps is the Nation's Ready Force, a force capable of responding to crises anywhere around the globe at a moment notice.

The Marine Corps deploys ready forces to meet today's crisis with today's force ... today. Deployed units are ready; however, approximately half of non-deployed units are at unacceptable levels of readiness—namely, while these units can perform some missions they are not sufficiently resourced and trained to perform the entirety of their core mission sets. Maintaining the readiness of deployed units is heavily reliant on personnel and equipment resources resident within non-deployed units. Consequently, not all home station ground combat battalions, aviation squadrons, logistic units, and command elements are trained to mission standards in all core essential competencies—such as amphibious operations. The paucity of operationally available amphibious shipping precludes many Marine units from training to standard in amphibious operations. Home stationed units are expected to be in higher states of readiness since they would surge to unexpected major contingencies or unforeseen crises. Sequestration would force the Marine Corps to significantly degrade the readiness of home station units.

Currently, non-deployed units receive the training they require prior to undertaking their next deployment. But, a return to Budget Control Act level funding will challenge the Marine Corps' ability to properly equip and train its units. BCA and sequester resulted in the loss of 400 skilled artisans from aviation depots that contributed to maintenance backlogs—in particular, F/A-18 aircraft. Aircraft maintenance backlogs exacerbated aircraft availability for home station training. Less aircraft leads to lower flight hours, lower aircrew proficiency, and higher aircraft utilization rates that further contribute to increased aircraft inductions to the depots. This all leads to lower aviation readiness.

Although all major equipment has returned from Afghanistan, the Marine Corps continues its reconstitution of the whole-of-force after over a decade of sustained conflict. The Marine Corps will not take an operational pause to reconstitute; rather, as war-torn equipment is repaired, returned back to units, and subsequently employed operationally, the Marine Corps will continue to develop and field equipment. The evolution of operational maneuver from the sea and ship-to-objective maneuver requires developing a complimentary portfolio of ground combat and tactical vehicle capabilities, such as sustaining a portion of the decades old amphibious assault vehicle and fielding its intended replacement—the Amphibious Combat Vehicle.

ICE BREAKING

13. Senator SULLIVAN. Mr. Dee and Lieutenant General Glueck, what are the obstacles to adding icebreakers to the Navy's fleet, especially given the Navy's Arctic responsibility to keep Arctic sea lanes open?

Mr. DEE and Lieutenant General GLUECK. Congress assigned responsibility for icebreaking to the U.S. Coast Guard per 14 U.S. Code § 2-Primary duties, which states, "the Coast Guard shall develop, establish, maintain, and operate with due regard to the requirements of national defense, aids to maritime navigation, icebreaking facilities, and rescue facilities for the promotion of safety on, under, and over the high seas and waters subject to the jurisdiction of the United States."

The Navy recognizes that the opening of the Arctic Ocean has important national security implications and fully supports the U.S. Coast Guard's (USCG) efforts to modernize its icebreaking fleet and increase Arctic capabilities.

14. Senator SULLIVAN. Mr. Dee and Lieutenant General Glueck, with a non-bureaucratic answer that shifts the responsibility to the Department of Homeland Security, how is the Navy going to acquire additional icebreaking capacity in the future and what will they do if they do not get it?

Mr. DEE and Lieutenant General GLUECK. Current Navy capabilities are sufficient to meet near-term operational needs. The Navy recognizes, however, that the opening of the Arctic Ocean has important national security implications and fully supports the U.S. Coast Guard's (USCG) efforts to modernize its icebreaking fleet and increase Arctic capabilities. The USCG Cutter *Polar Star*'s recent reactivation will provide the U.S. with heavy icebreaker capability for about another seven to ten years. *Polar Star*, along with the medium icebreaker USCG Cutter *Healy*, provide the minimum capability necessary to address the Nation's near term icebreaking needs and will provide the USCG time to assess longer term national needs and requirements.

In accordance with the U.S. Navy Arctic Roadmap, in the near-term the Navy will refine or develop the necessary strategy, policy, plans and requirements for the Arctic Region. Additionally, the Navy will continue to study and make informed decisions on pursuing investments to better facilitate Arctic operations.

“EXPEDITIONARY FORCE 21” AND ARCTIC ISSUES

15. Senator SULLIVAN. General Gluek, “Expeditionary Force 21” does not contain a single mention of the word “arctic.” When the Marine Corps updates “Expeditionary Force 21,” what does the Corps plan to include about the Arctic?

Lieutenant General GLUECK. The Marine Corps maintains its legacy to “fight in any clime and place” and will be ready to operate in the arctic when needed. We are ready to provide naval expeditionary forces anywhere the Navy sails. Marines maintain a requisite level of cold weather skills by training at the Mountain Warfare Training Center in Bridgeport, CA. This facility maintains subject matter experts and instructors in cold weather operations, and trains both specially trained Mountain Leaders as well as entire units in these critical skills. We further develop our capability by participating in other cold weather exercises and training. These include USNORTHCOM, State of Alaska, and Canadian exercises in addition to our yearly support of USEUCOM’s exercise COLD RESPONSE in Norway.

While you are correct that Expeditionary Force 21 does not specifically address arctic operations, it should be noted that Expeditionary Force 21 is intended as a foundational capstone concept as opposed to an operational or strategic plan. As such, the tenets and concepts within are designed to apply to all environmental possibilities. Crisis and contingency response capabilities must be able to handle any climate in which there is a need for the Marines. Both EUCOM and NORTHCOM Areas of Responsibility (AOR), which comprise the entirety of the arctic region, are specifically addressed. The Marines will continue to provide forces ready to operate in extreme cold environments to Combatant Commanders.

Additionally, we will continue to integrate our efforts with our fellow sea services. For instance, we have requested that US Coast Guard ice breakers in development be built with aviation landing decks capable of receiving the MV-22, an aircraft whose range, speed, and versatility was specifically designed to support operations in the vast reaches of arctic and desert environments.

16. Senator SULLIVAN. General Gluek, given that we only have a 13-page Arctic strategy, how detrimental is not having extensive guidance—as you have in other AORs—to give clear Arctic direction for the Corps?

Lieutenant General GLUECK. The Marine Corps provides forces to the Combatant Commanders who are ready to fight both across the range of military operations and throughout a range of climates. As a force provider, we are focused on preparing Marines to handle the tasks that the Combatant Commanders request. It is true that a more robust arctic strategy may help those Commanders develop their contingency plans and by extension the skills they request from the Marine Corps. However, from a service perspective, our history of operating in extreme cold climates has driven us to develop excellent cold weather training facilities and exercises.

We are ready to provide naval expeditionary forces anywhere Combatant Commanders call for them. Marines develop and maintain their cold weather skills by training at the Mountain Warfare Training Center in Bridgeport, CA, which houses subject matter experts and instructors in cold weather operations, and which trains both specially trained Mountain Leaders as well as entire units in these critical skills. We further develop our capability by participating in other cold weather exercises and training. These include USNORTHCOM, State of Alaska, and Canadian exercises in addition to our yearly support of USEUCOM’s exercise COLD RESPONSE in Norway.

Crisis and contingency response capabilities must be able to handle any climate in which there is a need for the Marines. As such, both EUCOM and NORTHCOM Areas of Responsibility (AOR), which comprise the entirety of the arctic region, are specifically addressed. The Marines will continue to provide forces ready to operate in extreme cold environments to Combatant Commanders.

Additionally, we will continue to integrate our efforts with our fellow sea services. For instance, we have requested that US Coast Guard ice breakers in development be built with aviation landing decks capable of receiving the MV-22, an aircraft whose range, speed, and versatility was specifically designed to support operations in the vast reaches of arctic and desert environments.

17. Senator SULLIVAN. General Gluek, how does the lack of Arctic guidance affect your ability to resource for Marine expeditionary operations in the Arctic AOR?

Lieutenant General GLUECK. The Marine Corps provides forces to the Combatant Commanders who are ready and equipped to fight both across the range of military operations and throughout a range of climates. As a force provider, we are focused on preparing Marines to handle the tasks that the Combatant Commanders request. It is true that a more robust arctic strategy may help those Commanders develop their contingency plans and by extension the skills and capabilities that they re-

quest from the Marine Corps. When making resourcing decisions, the Marine Corps must make tradeoffs between various capabilities during procurement. No piece of equipment can be optimized for every available option. It is true that more explicit arctic strategy might change the prioritization of those tradeoffs.

However, it should be noted that we do take extreme cold weather environments into account when making resourcing decisions. The Marine Corps maintains a Mountain Warfare Training Center (MWTC) in Bridgeport, CA with a cadre of experienced mountain leaders who test, develop, and provide input on procurement decisions. Further, they use this equipment year in and year out when training individuals and units in the challenges of cold weather operations to validate its efficacy and to make recommendations for future resourcing decisions. Additionally, we will continue to integrate our efforts with our fellow sea services. For instance, we have requested that US Coast Guard ice breakers in development be built with aviation landing decks capable of receiving the MV-22, an aircraft whose range, speed, and versatility was specifically designed to support operations in the vast reaches of arctic and desert environments.

QUESTIONS SUBMITTED BY SENATOR BILL NELSON

ASSAULT AMPHIBIOUS BATTALION PLANS

18. Senator SULLIVAN. Mr. Dee and Lieutenant General Glueck, the Marine Corps currently has a total of 12 Assault Amphibian Battalions and plans to divest 2 for a total of 10 by 2018. How and when will the Marine Corps decide which two will be divested? What are the operational Impacts of this reduction?

Mr. DEE and Lieutenant General GLUECK. The Marine Corps will divest two Assault Amphibian Companies by 2018. Each of these companies provides the lift for a single infantry battalion. These companies are planned to come from the active component. First we will divest of Company D, 2d Assault Amphibious (AAV) Battalion in fiscal year 2016 and then Company C, 2nd AAV Battalion in 2018. The Marine Corps will still be able to meet its requirement to employ two Marine Expeditionary Brigades (MEB) in an Assault Echelon (AE) with this lift capacity.

19. Senator SULLIVAN. Mr. Dee and Lieutenant General Glueck, the 4th Assault Amphibian Battalion assigned under Marine Forces Reserve is a key part of the Marine Corps' total Assault Amphibian operations capability with more than half of the Reserve capacity. What is the modernization plan for its Assault Amphibious Vehicles (AAV-7) during the acquisition and fielding of the ACV?

Mr. DEE and Lieutenant General GLUECK. The USMC Reserve is a critical component of our operational capability and is scheduled to receive Amphibious Combat Vehicles (ACV) during the second increment of planned procurement during the 2020s.

20. Senator SULLIVAN. Mr. Dee and Lieutenant General Glueck, what are the overall numbers of the AAV-7s that will receive the AAV survivability upgrades and how did the Marine Corps come at that number?

Mr. DEE and Lieutenant General GLUECK. Four of our active duty Assault Amphibious Vehicle (AAV) Companies will receive AAV Survivability Upgrade Program (SUP) for a total of 392 upgraded vehicles. This program will bridge the gap to the final increment of Amphibious Combat Vehicle 2.0 procurement in the 2030s, when the AAV (SUP) items are scheduled to be phased out of our inventory. 392 vehicles is sufficient for four infantry battalions worth of lift and effectively allows us to bridge the path for procurement of ACV increments 1.1, 1.2, and 2.0 while still retaining a capacity to simultaneously employ two Marine Expeditionary Brigades (MEB) as an Assault Echelon (AE) throughout the entire transition of the fleet from AAVs to ACVs.

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2016 AND THE FUTURE YEARS DEFENSE
PROGRAM**

WEDNESDAY, MARCH 18, 2015

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVY SHIPBUILDING PROGRAMS

The subcommittee met, pursuant to notice, at 9:31 a.m. in Room SR-222, Russell Senate Office Building, Senator Roger Wicker (chairman of the subcommittee) presiding.

Committee members present: Senators Wicker, Sessions, Ayotte, Rounds, Tillis, McCain, Shaheen, Hirono, Kaine, and King.

**OPENING STATEMENT OF SENATOR ROGER F. WICKER,
CHAIRMAN**

Senator WICKER. This hearing will come to order.

The Senate Armed Services Subcommittee on Seapower convenes this morning to examine Navy shipbuilding programs.

We are delighted to welcome three distinguished witnesses today: The Honorable Sean Stackley, Assistant Secretary of the Navy for Research, Development, and Acquisition; Vice Admiral William H. Hilarides, Commander of Navy Sea Systems Command; and Vice Admiral Joseph P. Mulloy, Deputy Chief for Naval Operations for Integration of Capabilities and Resources, quite a title.

Gentlemen, our subcommittee is grateful to you for your decades of service, and we are also grateful for the sacrifice of our sailors and marines serving around the globe. With nearly than 100 ships deployed today, standing the watch, our Navy continues to provide a front line of defense for our country.

Now, more than ever, a strong Navy is central to our Nation's ability to deter adversaries, assure allies, and defend our national interests. Our sailors and marines are at the forefront of our rebalance to Asia, our ongoing operations against the Islamic state, and our efforts to deter rogue states such as Iran and North Korea. However, our current fleet of 275 ships is insufficient to address these critical security challenges. The Navy's stated force structure requirement is 306 ships. The bipartisan National Defense Panel calls for a fleet of 323 to 346 ships. Our combatant commanders say they require 450 ships. Despite these publicly stated require-

ments by our military leaders, the Navy says acquisition—says that sequestration could shrink our fleet to 260 ships.

Not only is our Navy too small, it is also not as ready as it should be. Sequestration in 2013 and a high operational tempo in Asia and the Middle East have led our naval fleet to endure major readiness shortfalls, including longer deployments, reduced training time, and reduced surge capability. I am concerned about the potential impact these factors will have on our ability to deter and confront future adversaries. These factors could also endanger the long-term vitality of the Navy's highly skilled and All-Volunteer Force of sailors and marines.

This morning, I would like to hear from our witnesses on what I consider five key issues that our subcommittee will review this year:

First, the viability of the 30-year shipbuilding plan is essential to the strength of our shipbuilding industrial base. The unique strength of the skills, capabilities, and capacities inherent to new construction shipyards and weapon system developers can reinforce the Navy's dominant maritime position. I would like our witnesses to relate how they carefully weigh the effects on the shipbuilding industrial base when they balance resources and requirements in the shipbuilding plan.

Second, it is critical this subcommittee conduct rigorous oversight of shipbuilding programs to ensure the Navy is making the best use of limited taxpayer dollars. The Congress expects the *Ford*-class Nuclear Aircraft Carrier Program and Littoral Combat Ship, LCS, to deliver promised capability on time and on budget. Delays or unsatisfactory test results could result in cost growth and challenges for the legacy platforms these ships will replace. With regard to the Navy's decision on the upgraded LCS, known as the small surface combatant, this subcommittee needs clarity on the specific combatant commander gaps these upgraded ships may fill. Our subcommittee would also like to know what threat benchmarks these ships should be measured against.

Third, this subcommittee also has a duty to shape the future of our Navy. Each of our classes of surface combatant ships—cruisers, destroyers, and littoral combat ships—will begin retiring within the next 20 years. Now is the time to establish the analytical framework to replace them. I am also deeply concerned about the extraordinary cost of the *Ohio*-class submarine Replacement Program, or ORP, could place tremendous stress on our already constrained shipbuilding budget. Undoubtedly, we'll talk about that today. This committee looks forward to working with the Department of Defense (DOD) and the Department of the Navy on innovative approaches to fund the ORP, which is a vital leg in our nuclear triad.

Fourth, I am interested in learning the views of our witnesses on ways we can ensure the Navy's shipbuilding plan meets the demand from our combatant commanders for amphibious ships. This demand is greater than 50 amphibious ships at any given time. I am pleased to note that the Navy has funded LPD-28, the 12th *San Antonio*-class amphibious ship. As we continue to pivot toward Asia Pacific, the Navy and Marine Corps will serve as the lynchpin of American force projection abroad. Our subcommittee would like

to know more about the acquisition strategy or the LHA-8s, big-deck amphibious ship, the first six ships of the new fleet oiler, and our next-generation amphibious assault ship, known as the LX(R).

Finally, funding and budget challenges. The Navy continues to face significant budget challenges. Navy funding has already been reduced 25 billion compared to the budget request over the last 3 years. Admiral Greenert testified before the Senate Armed Services Committee in January that maintenance and training backlogs on budget cuts have reduced the Navy's ability to maintain required forces for contingency response to meet combatant command operational plan requirements.

As a member of both the Armed Services Committee and the Budget Committee, I know that tough decision must be made across the Federal Government, but I would remind everyone that national defense is solely a Federal responsibility. Defense spending is also known as a twofer, as I have stated repeatedly over the years, supporting both our National security and our high-tech manufacturing workforce. As such, I hope our witnesses today will elaborate on the impact that sequestration would have on a shipbuilding plan, the ability to execute our country's national security strategy, and the vitality of our defense industrial base.

With that in mind, I'd turn to my distinguished Ranking Member, Senator Hirono, for whatever opening remarks she would like to make.

STATEMENT OF SENATOR MAZIE K. HIRONO

Senator HIRONO. Thank you, Mr. Chairman.

I share the Chair's focus on the rebalance to the Asia-Pacific. Even as there are so many areas of the world where there is instability—the Middle East, Africa, Ukraine—we want to make sure that this area of the world, the Asia-Pacific area, remains as stable as possible. That is really part of what the rebalance looks to.

So, I certainly welcome all of our witnesses, and thank you for your service to the Nation.

I also want to extend my aloha and thanks to the professional service of the men and women under your command, and to their families, because, without their families supporting them, I think that it would make things a lot more difficult for our servicemembers to provide the kind of service that they do provide to our Nation.

So, today our witnesses face huge challenges as you strive to balance the need to support ongoing operations and sustain readiness with the need to modernize and keep the technological advantage that is so critical to military success. These challenges have been made particularly difficult by the spending caps imposed in the Budget Control Act (BCA), caps that were modestly relieved in 2015 in the Bipartisan Budget Act (BBA). However, as we all know, these caps are scheduled to resume in 2016 and beyond. These caps already seriously challenge our ability to meet our national security needs, and have already forced all of the military departments to make painful tradeoffs. Unless modified for the years after fiscal year 2016 and beyond, I believe that they will threaten our long-term national security interests.

With that in mind, the continuing focus of this committee has been to see that we improve our acquisition stewardship and thereby ensure that we are getting good value for every shipbuilding dollar that we spend. We are very pleased to see continued stability and performance in the *Virginia*-class attack submarine production at a level of two per year. We have seen that stability helps drive down costs and improve productivity. We also support the Navy's continuing effort to drive costs out of the *Ohio* replacement ballistic missile submarines (SSBN) program. SSBNs will remain a vital link on the nuclear triad for the foreseeable future. Establishing and achieving cost-reduction goals in these *Virginia*-class and *Ohio* replacement programs will yield significant stability to our Nation's submarine industrial base, which will ensure the Navy has a modern, capable submarine fleet for years to come.

Aircraft carrier programs are another important area for discussion of the subcommittee. We need to hear about the progress that the Navy and the contractors are making to deliver CVN-78 within the cost cap and what progress is being made on reducing the production costs for CVN-79 and later carriers.

Another topic that we should address is the discussion within DOD of changes to the Littoral Combat Ship, LCS, Program. The Navy, responding to direction from former Secretary Hagel, analyzed numerous upgrades to the current LCS designs, and has identified some upgrades to the ships that the Navy hopes to include in the 33rd ships—ship and beyond. We need to ensure that the Navy has validated requirements for making these changes.

This year, the Navy wants to implement an engineering change proposal for the DDG-51 destroyer program to include the Air and Missile Defense Radar, or AMDR, on the second DDG-51 in the fiscal year 2016 budget request. We need to assess whether the Navy and contractors have made significant progress on the AMDR program to merit including this new radar in the DDG-51 during the middle of the multiyear procurement program. In our country's current fiscal environment, it's very unlikely that we will have as much money to spend as the 30-year shipbuilding plans and goals assumed. Fundamentally, that is why these hearings are so important. We need to focus on managing these important programs in ways that are efficient and effective in delivering the capability the country needs from its Navy. We need to improve quality and efficiency in all our shipbuilding programs, and not only—not only because of the direct savings, but also because we need to demonstrate to the taxpayer that we are using every defense dollar wisely.

Gentlemen, I look forward to your testimony this morning.

Thank you, Mr. Chairman.

Senator WICKER. Thank you, Senator Hirono.

Secretary STACKLEY.

STATEMENT OF HON. SEAN J. STACKLEY, ASSISTANT SECRETARY OF THE NAVY, RESEARCH, DEVELOPMENT, AND ACQUISITION

Mr. STACKLEY. Yes, sir. Chairman Wicker, Ranking Member Hirono, distinguished members of subcommittee, thank you for the

opportunity to appear before you today to discuss the Department of the Navy's shipbuilding programs.

With the permission of the subcommittee, I propose to provide brief opening remarks and submit a separate formal statement for the record.

Senator WICKER. Without objection.

Mr. STACKLEY. Thank you, sir.

The timely passage of the 2015 national defense authorization and appropriations bills has provided much needed budget stability, relative to recent prior years, enabling the Department to carry out its mission with far greater efficiency and effectiveness. In fact, the Department of the Navy fared extremely well in this year's bills. We greatly appreciate the subcommittee's efforts, for not only has Congress fully supported our request, but it has increased procurement in our most critical programs, sending a strong signal of support for our Navy and Marine Corps mission.

However, as you have noted, we cannot lose sight of the fact that, as a result of sequestration in 2013 and the Bipartisan Budget Act across 2014 and 2015, the Department of the Navy's budget has been reduced by \$25 billion, compared to the funding that we had determined was necessary to meet the Defense Strategic Guidance, or the DSG. As a result, quantities of ships, aircraft, and weapons has been impacted, development programs have been stretched, modernization has been slowed, deployments have been canceled, deployments have been stretched, and depot and facilities maintenance has been deferred, all placing greater strain on the force. With a significant portion of the reductions levied against procurement, the resultant quantity reductions had the perverse impact of driving up unit cost for weapon systems at a time when cost is one of the great threats before us.

In building the 2016 budget request, we've been faithful to our fiscal responsibilities, leveraging every tool available to drive down cost. We've tightened requirements, maximized competition, increased the use of fixed-price contracts, and capitalized on multiyear procurements, and we've attacked our cost of doing business so that more of our resources can be dedicated to warfighting capability. Alongside range and speed and power and payload, affordability has become a requirement.

All the while, independent of the fiscal environment, the demand for naval presence is on a steady rise. As you've noted, near half of our fleet is routinely at sea, and, of that number, about 100 ships and more than 75,000 sailors and marines are deployed. On the ground in Afghanistan, in the air over Syria, on the waters of the Black Sea, from the Sea of Japan to the eastern Mediterranean, they are the providers of maritime security. They are our first responders to crisis. They are our surest defense against a threat of ballistic missiles. They are our Nation's surest deterrent against the use of strategic weapons. Therefore, we've placed a priority on forward presence, near-term readiness, investment in those future capabilities critical to our technical superiority and stability in our shipbuilding program.

Our shipbuilding program is, in fact, very stable. The fleet under construction is 65 ships strong, 44 ships of 10 different classes in fabrication and assembly at 8 shipyards, and another 21 ships re-

cently contracted, with material on order at factories across the country. We are on track to a 300-ship Navy by 2019.

Highlights. We commissioned *USS America*, LHA-6, the first new-designed big-deck amphib in over 30 years, and laid the keel of her sister ship, *Tripoli*, LHA-7, this past year. We're completing construction and testing of CVN-78, *Gerald Ford*, our first new-designed aircraft carrier in more than 40 years, and we have started construction of her sister ship, *John F. Kennedy*, CVN-79. Likewise, DDG-1000, the first new-design destroyer in 30 years, is ramping up its shipboard system activation and testing, preparing for sea trials later this year. On each of these programs, we are heavily engaged with industry to control cost on the lead ship and to leverage learning and make the necessary investments to reduce costs on follow ships. Meanwhile, DDG-51 construction is proceeding steadily, with the first restart ship, DDG-113, on track to deliver in 2016.

Equally important, we're on track with the first Flight-3 destroyer upgrade. The backbone of Flight 3, the Air and Missile Defense Radar, completed its critical design review and is meeting or exceeding all performance requirements. The Navy relies on your continued support for this capability, which is so critical to countering the increasing crews and ballistic missile threat.

The Littoral Combat Ship continues to demonstrate strong learning-curve performance at both building yards, and the first surface warfare mission package completed operational testing and is today deployed on *USS Fort Worth* in the western Pacific. As was announced, the Navy will commence a new frigate-class design, based on modifications to the current LCS, to provide multimission capability and enhanced survivability that will significantly expand this ship's range of operations.

In submarines, we continue to leverage learning on the *Virginia* program and are proceeding with the design of the next major upgrade, *Virginia* payload modules, to augment our undersea strike capacity as our guided-missile submarines, the SSGNs, retire in the next decade. We're ramping up design activities on the *Ohio* replacement program to support her critical schedule.

In other shipbuilding programs, we have requested the balance of funding for the 12th LPD class to leverage the benefits brought by that ship to our amphibious force. We're building our first afloat forward staging base, and continue to enjoy strong learning-curve performance on joint high-speed vessel. We're proceeding with three new major programs: the fleet oiler TAO(X), the next big-deck amphib, LHA-8, and the replacement for the LSD-41/49 class LX(R). Each is critical to our force. Each is critical to the industrial base. Affordability is critical to each. So, we've constructed an acquisition strategy to meet these objectives.

Of interest to this subcommittee, we have awarded the planning contract and are proceeding with the refueling overhaul of CVN-73, the *George Washington*. Likewise, we are proceeding with the planning and material procurement for our cruiser and dock landing ship (LSD) modernization programs, in accordance with Congress' approval in the 2015 bills.

As a final note, in response to sequestration in 2013, the BBA level funding in 2014 and 2015, and the reductions across 2016

through 2020, the Department has been judicious in controlling costs, reducing procurements, and delaying modernization. However, these actions necessarily add cost to our programs, add risk to our industrial base, and add risk to our ability to meet defense strategic guidance.

All the while, we have been asking our sailors and marines to endure extended deployments while responding to new challenges in an incredibly complex security environment. If we are forced to execute at BCA levels in fiscal year 2016 and beyond, these cuts will go deeper, and we fundamentally change the Navy and Marine Corps and the industrial base the Nation relies on for our National defense and economic security.

Mr. Chairman, thank you for the opportunity to appear before you today. We look forward to answering your questions.

[The prepared joint statement of Mr. Stackley, Admiral Hilarides, and Admiral Mulloy follows:]

THE JOINT PREPARED STATEMENT BY HON. SEAN J. STACKLEY, VADM JOSEPH P. MULLOY, AND VADM WILLIAM H. HILARIDES

Mr. Chairman, Senator Hirono, and distinguished members of the subcommittee, thank you for the opportunity to appear before you today to address the Department of Navy's shipbuilding programs.

The fiscal year (FY) 2016 President's Budget submission is governed by the 2014 Quadrennial Defense Review (QDR), which implements the 2012 Defense Strategic Guidance (DSG) and continues our efforts to ensure our ability to protect the homeland, build security globally, and project power and win decisively. In balancing resources and requirements, the Department continues to place a priority on maintaining a sea-based strategic deterrent, sustaining forward presence, strengthening our means to defeat and deny aggression, focusing on critical readiness, sustaining or enhancing our asymmetric capabilities, and sustaining a relevant industrial base, including providing stability in our shipbuilding programs. The Navy and Marine Corps remain well suited and uniquely positioned to perform the missions of the DSG, including appropriate readiness, warfighting capability, and forward presence. Our principal requirement remains to equip the Navy and Marine Corps with the most effective warfare systems, through procurement, modernization, and sustainment, to address the security challenges of today and tomorrow. These principles guide the priorities and direction of the Department's fiscal year 2016 President's Budget request. The Department will continue to work closely with Congress to maintain the right balance across capacity, capability, readiness, and the industrial base.

Though budget issues have challenged the Department, our Sailors and Marines deployed around the world continued to perform the mission and operate forward, being where it mattered when it mattered. Among these missions, the George H.W. Bush Strike Group relocated from the Arabian Sea to the north Arabian Gulf and was on-station within 30 hours, ready for combat operations in Iraq and Syria. Navy and Marine strike fighters from the carrier generated 20 to 30 combat sorties each day for 54 days to project power against the Islamic State of Iraq. The George Washington Strike Group also provided disaster relief to the Philippines in the wake of the Super Typhoon Haiyan approximately a year ago. USS *Truxtun* established a U.S. presence and reassured our allies in the Black Sea within a week after Russia invaded Crimea. USS *Fort Worth*, on her maiden deployment, joined USS *Sampson* in support of the Indonesia-led search effort for Air Asia flight 8501 within days of arrival in theater.

Marine Corps units deployed to every Geographic Combatant Command (GCC) and executed numerous Theater Security Cooperation (TSC) exercises to help strengthen relationships with allies and build partner capacity. Marine Corps Special Purpose Marine Air-Ground Task Force (MAGTFs) and ship based Marine Expeditionary Units also responded to emergent crises in Sudan, Iraq and Libya, and most recently off the coast of Yemen to participate in strikes or reassure American allies. Innovative force packages were provided to the GCCs with Special Purpose MAGTF Crisis Response for the Middle East and Africa. These fully capable ground-based MAGTFs responded to crisis when called upon in a matter of hours to reinforce or evacuate embassies in South Sudan and Libya. Furthermore, in December,

the Marines turned over control of Regional Command Southwest and redeployed its last combat forces from Afghanistan, and remain committed to support the continuing North Atlantic Treaty Organization efforts.

The Department maintained a steady pace of over 200 engagements, more than 30 amphibious operations, 150 TSC events, and 130 exercises over the year. This included Rim of the Pacific, an exercise off Hawaii that featured participants from 22 nations (including China for the first time), and the international mine countermeasures exercise in the 5th Fleet's arena in and around the Arabian Gulf that included participants from 44 nations. In addition, the Marine Corps deployed numerous other units globally. The newly developed Marine Security Guard Security Augmentation Unit deployed 29 times during 2014 to augment posts at the request of the State Department to a variety of embassies. Marine Rotational Force-Darwin based in Darwin, Australia, conducted bi-lateral training and exercises. The Black Sea Rotational Force continued their enduring activities in the European Command area of operations and Fleet Anti-Terrorism Security Teams provided forward-deployed platoons to four GCCs in support of dynamic mission tasking such as embassy reinforcement in Baghdad, Iraq.

The Department's fiscal year 2016 budget represents the bare minimum to execute the DSG in the world we face, but still results in high risk in two of the most challenging DSG missions that depend on adequate numbers of modern, responsive forces. The principal risk to the Department's ability to meet the DSG remains the uncertainty in future funding, which affects our planning and the ability to balance near- and long-term readiness and capability. The fiscal year 2014 President's Budget was the last budget submission to fully meet all of the missions of the DSG. The Department made difficult, strategy-based choices to reprioritize within available resources, but that is not sustainable. The fiscal year 2013 sequestration was manageable in part because of key budget reprogramming actions made by the Department with Congressional support. In order to accomplish this, however, the Department applied mitigating actions to ships in execution and deferred costs to future years in order to avoid breaking programs. While the Bipartisan Budget Act of 2013 (BBA) provided some relief from sequestration-level funding in fiscal year 2014 and fiscal year 2015, significant shortfalls remained compared to the fiscal year 2014 President's Budget. The Department was compelled to further reduce the capability of weapons and aircraft, slow modernization, and delay upgrades to all but the most critical shore infrastructure. As a result, the Department is challenged with maintenance backlogs, compressed training for modernization, and impacts on our people and their families due to extended deployments.

If sequestration returns in fiscal year 2016, a revisit and revision of the defense strategy would be necessary. With limited ability to mitigate the impacts as we did in fiscal year 2013, sequestration in fiscal year 2016 would force the Department to further delay critical warfighting capabilities, reduce readiness of forces needed for contingency response, further downsize weapons capacity, and forego or stretch force structure procurements as a last resort. The Marine Corps would assume additional significant risk in long-term modernization and infrastructure sustainment, delay of major acquisition programs, forced sustainment of aged legacy systems resulting in increased operations and support costs, as well as further detrimental impacts to readiness, which will lead to morale issues and quality of life degradation. The Department's capability and capacity to meet operational requirements over the long-term will be reduced, including our ability to deploy forces on the timeline required by GCCs in the event of a contingency.

THE FISCAL YEAR 2016 PRESIDENT'S BUDGET REQUEST

The fiscal year 2016 President's Budget submission continues to balance force structure, readiness, and capability to meet national security commitments. The Department's shipbuilding plan is built around stability, balancing near-term and long-term requirements to enable efficient planning and procurement, improve cost performance, and sustain the critical shipbuilding and supplier industrial base. A brief overview of Navy shipbuilding programs follows.

SHIPBUILDING

The fiscal year 2014 update to the 2012 Force Structure Assessment (FSA) to meet the Department of the Navy's required missions in support of the DSG, has increased the objective to 308-ships to account for evolving force structure decisions and real-world changes to assumptions made in 2012. The Department's fiscal year 2016 shipbuilding plan continues to build toward the balanced force required by the FSA. As such, the fiscal year 2016 President's Budget requests funding for nine ships: two *Virginia*-class attack submarines, two DDG-51 *Arleigh Burke*-class de-

stroyers, three Littoral Combat Ships (LCS), the first next generation logistics fleet resupply ship T-AO(X), and the remaining funding for the Amphibious Transport Dock (LPD 28) that Congress added in fiscal year 2015. The fiscal year 2016 submission for the Future Years Defense Program (FYDP), fiscal year 2016 to fiscal year 2020, plans for the procurement of 48 ships. Additionally, the budget request includes funding for the aircraft carrier USS *George Washington*'s refueling and complex overhaul (RCOH).

An additional key component of our budget submission is the modernization of 11 cruisers, which are the most capable ships for controlling the air defense of a carrier strike group. The Navy's cruiser modernization plan in accordance with fiscal year 2015 Congressional direction will allow the Navy to reduce some funding requirements while increasing the capability and extending the service life of our large surface combatants.

The key elements of the fiscal year 2016 shipbuilding plan will now be discussed for each area of the plan.

AIRCRAFT CARRIERS

Our aircraft carriers are central to our nation's defense strategy, which calls for forward presence; the ability to simultaneously deter potential adversaries and assure our allies; and capacity to project power at sea and ashore. These national assets are equally capable of providing our other core capabilities of sea control, maritime security, and humanitarian assistance and disaster relief. Our carriers provide our nation the ability to rapidly and decisively respond globally to crises, with a small footprint that does not impose unnecessary political or logistical burdens upon our allies or potential partners.

Nimitz- and *Ford*-class carriers will be the premier forward deployed asset of choice for crisis response and early decisive striking power in major combat operations for the next half-century. The Department has established a steady state *Ford*-class procurement plan designed to deliver each new ship in close alignment with the *Nimitz*-class ship it replaces. The design improves warfighting capability, survivability, operational availability, and quality of life for Sailors, while reducing the ship's crew by between 500 and 900 personnel and decreasing total ownership costs by approximately \$4 billion per ship. *Gerald R. Ford* (CVN 78), the lead ship of the class, was launched in November 2013. As of January 2015, CVN 78 is 87 percent complete, 37 percent of compartments have been turned over to the crew, 9.4 million feet of the 9.8 million feet of cabling (96 percent) has been installed, and 36 percent of the shipboard testing program is complete. CVN 78 land-based catapult testing commenced in December 2014. CVN 78 is planned for delivery in fiscal year 2016.

The Navy is committed to delivering CVN 78 within the \$12.887 billion Congressional cost cap. Sustained efforts to identify cost reductions and drive improved cost and schedule on this first-of-class aircraft carrier have resulted in highly stable performance since 2011.

Parallel efforts by the Navy and shipbuilder are driving down and stabilizing aircraft carrier construction costs for the future John F Kennedy (CVN 79) and estimates for the future Enterprise (CVN 80). As a result of the lessons learned on CVN 78, the approach to carrier construction has undergone an extensive affordability review. The Navy and the shipbuilder have made significant changes on CVN 79 to reduce the cost to build the ship as detailed in the 2013 CVN 79 report to Congress. The benefits of these changes in build strategy and resolution of first-of-class impacts on CVN 79 are evident in metrics showing significantly reduced man-hours for completed work from CVN 78. These efforts are ongoing and additional process improvements continue to be identified.

The Navy extended the CVN 79 construction preparation contract into 2015 to enable continuation of ongoing planning, construction, and material procurement while capturing lessons learned associated with lead ship construction and early test results. The continued negotiations of the detail design and construction (DD&C) contract afford an opportunity to incorporate further construction process improvements and cost reduction efforts. Award of the DD&C contract is expected in third quarter fiscal year 2015. This will be a fixed price-type contract.

Additionally, the Navy will deliver the CVN 79 using a two-phased strategy. This enables select ship systems and compartments to be completed in a second phase, wherein the work can be completed more efficiently through competition or the use of skilled installation teams responsible for these activities. This approach, key to delivering CVN 79 at the lowest cost, also enables the Navy to procure and install shipboard electronic systems at the latest date possible.

The fiscal year 2014 National Defense Authorization Act (NDAA) adjusted the CVN 79 and follow ships cost cap to \$11,498 million to account for economic inflation and non-recurring engineering for incorporation of lead ship lessons learned and design changes to improve affordability. In transitioning from first-of-class to first follow ships, the Navy has maintained *Ford*-class requirements and the design is highly stable. Similarly, we have imposed strict internal controls to drive changes to the way we do business in order to ensure CVN 79 is delivered below the cost cap. To this same end, the fiscal year 2016 President's Budget request aligns funding to the most efficient build strategy for this ship and we look for Congress' full support of this request to enable CVN 79 to be procured at the lowest possible cost.

Enterprise (CVN 80) will begin long lead time material procurement in fiscal year 2016. The fiscal year 2016 request re-phases CVN 80 closer to the optimal profile, therefore reducing the overall ship cost. The Navy will continue to investigate and will incorporate further cost reduction initiatives, engineering efficiencies, and lessons learned from CVN 78 and CVN 79. Future cost estimates for CVN 80 will be updated for these future efficiencies as they are identified.

With more than half of the service life of the *Nimitz*-class still remaining, RCOH continues as a key enabler for the enduring presence of the aircraft carrier Fleet. USS *Abraham Lincoln* (CVN 72) completed her RCOH undocking in November 2014. This year's budget request restores funding for the USS *George Washington* (CVN 73) RCOH. The CVN 73 thirty month RCOH advanced planning, long lead time material procurement, engineering, and early fabrication contract was awarded in February 2015.

SUBMARINES

Submarines' stealth and ability to conduct sustained forward-deployed operations in anti-access / area-denial environments serve as force multipliers by providing high-quality Intelligence, Surveillance, and Reconnaissance (ISR) as well as indication and warning of potential hostile action. In addition, attack submarines are effective in anti-surface warfare (ASuW) and undersea warfare in almost every environment, thus eliminating any safe-haven that an adversary might pursue with access-denial systems. As such, they represent a significant conventional deterrent. The Navy is mitigating an impending attack submarine force structure shortfall in the 2020s through multiple parallel efforts: continuing procurement of two *Virginia*-class submarines per year; reducing the construction span of *Virginia*-class submarines; extending the service lives of select attack submarines (SSN 688s) with the potential to eliminate 10–15 attack submarine (SSN) years from the SSN shortfall of 51 years. While each of the Navy's attack submarines provides considerable strike capacity, guided missile submarines (SSGN) provide substantially more strike capacity and a robust capability to deploy special operations force (SOF) personnel. Lastly, the Navy's 14 ballistic missile submarines (SSBNs) provide the nation with an around-the-clock, credible, modern and survivable sea-based strategic deterrent.

SSBNs, coupled with the TRIDENT II D-5 Strategic Weapons System, represent the most survivable leg of the Nation's strategic arsenal and provide the Nation's most assured nuclear response capability. Originally designed for a 30-year service life, the *Ohio*-class was extended to its limit at 42 years of operation. With the *Ohio*-class SSBNs being an average of 25.5 years old, the U.S. must continue development of the follow-on twelve ship *Ohio* replacement (OR) SSBN program as the current SSBNs' life cycles cannot be extended further. This is our top priority program within the Department of the Navy.

The fiscal year 2016 President's Budget requests full funding of two *Virginia*-class submarines and advanced procurement for the fiscal year 2017 and fiscal year 2018 vessels. The *Virginia*-class submarine program has delivered the last seven ships on budget and ahead of schedule. The last ship delivered, USS *North Dakota* (SSN 784), included a completely redesigned bow section as part of the Design for Affordability efforts, an approximate 20 percent design change. Additionally, USS *North Dakota* delivered with the highest quality of any *Virginia*-class submarine to date.

The Navy awarded the Block IV contract in April 2014 for ten ships. It continues the co-production of the *Virginia*-class submarines between General Dynamics Electric Boat and Huntington Ingalls Industries—Newport News Shipbuilding through fiscal year 2018. The savings realized with this multiyear procurement (MYP) contract was over \$2 billion, effectively giving the Navy ten ships for the price of nine.

In December 2012, the Navy awarded a research and development (R&D) contract for OR SSBN which focuses on meeting the program's performance requirements while reducing costs across design, production, and operations and sustainment. The lead ship recurring estimate was reduced to \$6.2 billion Constant Year (CY) (\$8.8B Then Year (TY)) dollars from \$6.8 billion CY (\$10.0B TY) dollars. The average fol-

low-on ship recurring cost estimate was reduced to \$5.2 billion CY (\$9.8B TY) dollars from \$5.4 billion CY (\$10.5B TY) dollars. The non-recurring cost estimate is \$17.1 billion CY (\$22.4B TY). Cost reduction efforts continue and bring the Navy closer to its cost goals. The cost reduction efforts will continue throughout the design and construction phases.

The fiscal year 2016 President's Budget requests funding to continue development of the OR SSBN and ensures Common Missile Compartment efforts remain on track to support the United Kingdom's SUCCESSION Program's schedule. Given the need to recapitalize this strategic asset, coupled with the ongoing need to support Navy force structure, the Navy continues to pursue the means to resource construction of the OR SSBN in accordance with the schedule to fulfill U.S. Strategic Command requirements. The first-of-class is to be procured in 2021, with Shipbuilding and Conversion, Navy (SCN) advanced procurement in 2019 and 2020. The Navy continues to need significant increases in our topline beyond the FYDP, not unlike that during the period of *Ohio* construction, in order to afford the OR SSBN procurement costs. Absent a significant increase to the SCN appropriation, OR SSBN construction will seriously impair construction of virtually all other ships in the battle force: attack submarines, destroyers, and amphibious warfare ships. The shipbuilding industrial base will be commensurately impacted and shipbuilding costs would spiral unfavorably. The resulting battle force would fall markedly short of the FSA, unable to meet fleet inventory requirements. The National Sea-Based Deterrence Fund is a good first step in that it acknowledges the significant challenge of resourcing the OR SSBN, but the fund is unresourced.

In addition to the Department of the Navy's budget request, the continued support of Congress for Naval Reactors' Department of Energy (DoE) funding is vital to the Navy mission and ensuring the safe, reliable and enduring operations of the nuclear-powered Fleet. The President's fiscal year 2016 DoE budget fully funds Naval Reactors' request for the OR SSBN. This funding is critical to maintain the reactor design and development in sync with the Navy shipbuilding schedule to support lead ship procurement in 2021. The DoE budget submission also provides full funding for refueling the Land-based Prototype. This effort not only supports development of the OR SSBN life-of-the-ship core, but also ensures Naval Reactors continues to train about 1,000 nuclear-qualified sailors per year for the next twenty years. Naval Reactors' DoE budget also includes the second year of funding for the Spent Fuel Handling Project. Recapitalizing this facility is critical to the Navy's tight refueling and defueling schedule of nuclear-powered aircraft carriers and submarines.

The Navy's four SSGNs provide significant warfighting capability, but will be retired in 2026–2028 after 42 years of combined SSBN/SSGN service. To mitigate the 60 percent reduction in undersea strike capacity when they retire, the Navy is investing in Virginia Payload Module (VPM) that will include a hull insert amidships of a *Virginia*-class submarine that will contain four 87-inch diameter missile tubes each capable of launching seven TOMAHAWK cruise missiles. The fiscal year 2016 President's Budget continues VPM R&D and starts SCN funding in fiscal year 2017 for detail design efforts to enable integrating VPM into Block V *Virginia*-class SSNs, one per year starting in fiscal year 2019.

LARGE SURFACE COMBATANTS

Guided missile cruisers (CGs) and guided missile destroyers (DDGs) comprise our large surface combatant Fleet. When viewed as a whole, these ships fulfill broad mission requirements both independently and in conjunction with a strike group. The demands for increased capability and capacity in Ballistic Missile Defense (BMD) and Integrated Air and Missile Defense (IAMD) continue to be a focal point. In order to meet the increased demand for BMD, in fiscal year 2014, the Navy forward deployed two BMD capable DDGs, USS *Donald Cook* (DDG 75) and USS *Ross* (DDG 71) to Rota, Spain. USS *Carney* (DDG 64) and USS *Porter* (DDG 78) will arrive in fiscal year 2015. Two additional BMD ships will homeport shift to Yokosuka, Japan in 2015 and 2016, USS *Benfold* (DDG 65) and USS *Barry* (DDG 52). The Anti-Submarine Warfare (ASW) combat systems on DDGs and CGs are also being upgraded, bringing significant improvements over legacy systems.

The *Arleigh Burke*-class (DDG-51) program remains one of the Navy's most successful shipbuilding programs—62 ships are currently operating in the Fleet. The fiscal year 2016 President's Budget includes funding for two destroyers to execute the fourth year of the current MYP. One of these ships will incorporate IAMD and provide additional BMD capacity, and the other ship will introduce the next flight upgrade known as Flight III, which incorporates the Air and Missile Defense Radar (AMDR), with both ships bringing additional capability to the Fleet when they de-

liver in the early fiscal year 2020s. AMDR and Flight III are essential for future sea-based BMD. The fiscal year 2016 President's Budget also includes funding to complete the construction of Thomas Hudner (DDG 116) to restore program funding removed by the fiscal year 2013 sequestration.

AMDR is the future multi-mission radar of the Navy's surface combatant fleet, which will meet the growing ballistic missile threat by improving radar sensitivity and enabling longer range detection for engagement of increasingly complex threats. In October 2013, the Navy awarded the contract for development of the AMDR, with options for up to nine low rate initial production (LRIP) units. The AMDR radar suite will be capable of providing simultaneous surveillance and engagement support for long range BMD and area defense. The program continues to demonstrate maturity in the design development as shown in successful completion of the AMDR hardware critical design review (CDR) in December 2014 and is on track for the system CDR in April 2015. Engineering Change Proposal (ECP) detail design efforts for the DDG Flight III design will continue in fiscal year 2016, ultimately leading to over 90 percent detail design completion prior to construction on the first Flight III ship.

The DDG 1000 *Zumwalt*-class guided missile destroyer will be an optimally crewed, multi-mission, surface combatant designed to provide long-range, precision, naval surface fire support to Marines conducting littoral maneuver and subsequent operations ashore. In addition to the ship's two 155mm Advanced Gun Systems capable of engaging targets with the Long Range Land Attack Projectiles (LRLAP), the ship will be capable of conducting ASW, land attack, and will provide valuable advancements in technology such as signature reduction (both acoustic and radar cross-section), active and passive self-defense systems, enhanced survivability features, and shipboard automation (in support of reduced manning). The DDG 1000 program accomplished several construction milestones in 2014 with significant test and activation efforts continuing for the ship's propulsion and power plants. DDG 1000 sea trials will be conducted this year in preparation to enter the Fleet in 2016. The fiscal year 2016 budget requests funds to continue the DDG 1000 program.

SMALL SURFACE COMBATANTS

The Littoral Combat Ship (LCS) enables the Navy to implement the DSG imperative to develop innovative, low-cost, and small-footprint approaches to achieve our security objectives. The modular, open systems architecture inherent in LCS allows for rapid integration of technological solutions that increase capability at reduced cost. The LCS complements our inherent blue water capability and fills war fighting gaps in the littorals and strategic choke points around the world. LCS design characteristics (speed, agility, shallow draft, payload capacity, reconfigurable mission spaces, air/water craft capabilities) combined with its core command, control, communications, computers and intelligence; sensors; and weapons systems, allow LCS to bring unique strengths and capabilities to the mission.

In February 2014, Secretary Hagel capped LCS at 32 ships, pending an evaluation of the alternatives to increase the lethality and survivability of future small surface combatants. In December 2014, Secretary Hagel approved the Navy's proposal to procure a small surface combatant based on an upgraded LCS. The upgraded LCS will provide multi-mission ASuW and ASW, as well as continuous and effective air, surface and underwater self-defense. As these capabilities are generally consistent with those of a frigate, the Secretary of the Navy directed re-designation of upgraded LCS to frigates (FF). The fiscal year 2016 President's Budget requests funding for concept development and design for improved survivability and lethality performance in the Navy's future Frigate. The fiscal year 2016 request also includes funding for three LCS class ships. The Navy plans to extend the fiscal year 2010–2015 block buy contract to include the first ship in fiscal year 2016, and use the competitive pricing from the block buy to obtain option prices for the remaining two fiscal year 2016 ships. Furthermore, the fiscal year 2016 request includes funding to complete construction on LCS 9 through LCS 12, which was deferred due to sequestration in fiscal year 2013.

The LCS Mission Modules (MM) program continues its efforts to field capability incrementally as individual mission systems become available, rather than wait for all the mission systems needed for the end-state capability. The direction from Secretary Hagel does not affect the near term content and funding needs of the LCS MM program. The Navy still must continue to procure Mission Packages (MP) for fielding aboard LCS 1–32. In addition, the future frigates will retain specific mission module capabilities to augment the ships' organic ASuW and ASW, as directed by the Fleet Commanders. In November 2014, the program declared Initial Operational Capability (IOC) for the Surface Warfare (SUW) MP after successful testing onboard

USS Fort Worth (LCS 3) in April 2014. The Mine Countermeasure (MCM) MP completed its final Increment 1 Developmental Test event in October 2014. The MCM MP is currently scheduled for Technical Evaluation and Initial Operational Test & Evaluation (IOT&E) in 2015. The ASW MP successfully completed its initial integration test onboard *USS Freedom* (LCS 1) in September 2014, with operational testing scheduled to begin in 2016. This early operational test event will reduce integration risk through real-world, at-sea testing of the Advanced Development Model (ADM). A subsequent early deployment of the ASW MP ADM aboard *USS Freedom* (LCS 1) in 2016 will further prove out the capabilities of the ASW MP. Operational testing will culminate in IOT&E in 2017. Significant developmental and operational testing has already been accomplished on both variants, with embarked ASW, MCM and SUW MPs. The LCS and ASW MP performed as predicted and marked the first time an LCS has tracked a submarine with variable depth sonar and a multi-function towed array. *USS Freedom* (LCS 1) also served as the test platform for the Surface Electronic Warfare Improvement Program Block Two-Lite engineering development model (EDM) installation and testing. The fiscal year 2016 President's Budget requests funding for five MPs (two MCM, two SUW, and one EDM for ASW). The LCS, with a MP, provides capability that is equal to or exceeds the current capability of the ships that it is replacing.

With four LCS in-service, operational experience continues through at sea testing, operations and rotational deployments. *USS Fort Worth*'s deployment marks the beginning of continuous LCS forward presence in Southeast Asia, and will validate the class 3:2:1 (three crews, two ships, one ship always forward-deployed) rotational manning and crewing concept and mark the first deployment of the Navy's MH-60R Seahawk helicopter along with the MQ-8B Fire Scout on an LCS.

AMPHIBIOUS SHIPS

Amphibious ships operate forward to support allies, respond to crises, deter potential adversaries, and provide the nation's best means of projecting sustainable power ashore; they also provide an excellent means for providing humanitarian assistance and disaster relief. Amphibious forces comprised of Sailors, Marines, ships, aircraft and surface connectors provide the ability to rapidly and decisively respond to global crises without a permanent footprint ashore that would place unnecessary political or logistical burdens upon our allies or potential partners. There are two main drivers of the amphibious ship requirement: maintaining persistent forward presence, which enables both engagement and crisis response, and delivering the assault echelons of up to two Marine Expeditionary Brigades (MEB) for joint forcible entry operations.

The Chief of Naval Operations and Commandant of the Marine Corps have determined that the force structure for amphibious lift requirements is 38 amphibious ships, fiscally constrained to 33 ships. Balancing the total naval force structure requirements against fiscal projections imposes risk on meeting this requirement. Based on the footprint of a 2.0 MEB assault echelon force, a minimum of 30 operationally available ships are necessary to provide a force made up of ten Amphibious Assault Ships (LHD/LHA), ten Amphibious Transport Docks (LPD) and ten Dock Landing Ships (LSD). The fiscal year 2016 shipbuilding plan will result in a projected amphibious ship force structure of at least 31 ships in the near-term and maintains at least 33 ships throughout the 2020s and 2030s. At the end of fiscal year 2016, the Amphibious Force Structure will be 31 ships, which includes 9 LHD/LHAs, 10 LPDs, and 12 LSDs.

LHA(R) class ships are flexible, multi-mission platforms with capabilities that span the range of military operations—from forward deployed crisis response to forcible entry operations. These ships will provide the modern replacements for the remaining LHA 1 *Tarawa*-class ship and the aging LHD 1 *Wasp*-class ships as they begin decommissioning in the late 2020s. *USS America* (LHA 6) and *Tripoli* (LHA 7) are optimized for aviation capability and do not include a well deck. *USS America* delivered to the Navy in April 2014 and was commissioned in October 2014. LHA 7 is currently under construction and will deliver in 2018. LHA 8, the first Flight 1 ship, will have a well deck to increase operational flexibility and a smaller island that increases flight deck space to retain aviation capability. LHA 8 is funded in fiscal year 2017 and fiscal year 2018, and is planned for delivery in fiscal year 2024. LHA 8 will be competed as part of an amphibious and auxiliary shipbuilding acquisition strategy to support stability and affordability for this sector of the industrial base. The Navy expanded the early industry involvement efforts for the LHA 8 design and initiated a phased approach to the design for affordability of amphibious ships. fiscal year 2014 funding enabled affordability efforts that foster an interactive

competition with industry partners in developing a more affordable, producible detail design and build strategy, and drive towards more affordable ships.

The *San Antonio*-class (LPD 17) provides the ability to embark, transport control, insert, sustain, and extract elements of a MAGTF and supporting forces by helicopters, tilt rotor aircraft, landing craft, and amphibious vehicles. Two ships are under construction, John P. Murtha (LPD 26) and Portland (LPD 27), and will deliver in spring 2016 and summer 2017, respectively. The fiscal year 2015 Consolidated and Further Continuing Appropriations Act provided \$1 billion of funding toward a twelfth ship of class, LPD 28. The fiscal year 2016 President's Budget requests the balance of funding for LPD 28, and cost to complete funding for LPD 27. The program will include targeted cost reduction initiatives to improve affordability of the ship. Procurement of LPD 28 will assist in mitigating some impacts to shipbuilding and combat systems industrial bases. LPD 28 will possess all of the key fundamental capabilities and characteristics associated with LPDs 17 through 27, to include command and control, aviation operations and maintenance, well deck operations, and medical. There are fact of life changes due to obsolescence which need to be incorporated. LPD 28's design and construction features will, at the same time, exploit many of the ongoing LX(R) design innovations and cost reduction initiatives that are necessary for the program to achieve affordability goals while maintaining the high level capabilities of the LPD 17 class.

LX(R) is the replacement program for the landing ship dock, LSD 41 and LSD 49 classes, which will begin reaching their estimated service life in the mid-2020s. The Analysis of Alternatives Report was completed in April 2014. After thorough analysis, the Department has determined that using a derivative of the LPD 17 hull form is the preferred alternative to meet LX(R) operational requirements. This determination sustains the program's focus on requirements, affordability and total ownership cost. Program focus during fiscal year 2016 will be to finalize the requirements in the Capability Development Document and execute contract design efforts to meet acquisition milestones for procurement of the lead ship in fiscal year 2020. The LX(R) contract design effort is part of the Navy's recent announcement of its acquisition strategy for the LHA 8, six T-AO(X) ships, and LX(R) contract design. Both General Dynamics NASSCO and Huntington Ingalls Industries, Ingalls Shipbuilding will participate in this limited competition.

LX(R) is envisioned to be a flexible, multi-mission warship with capabilities that support execution of the full range of military operations. The need to support disaggregated or split operations away from the Amphibious Readiness Group or to deploy independently is a key driver for the design of the ship class. The inherent flexibility of amphibious ships is demonstrated by their support to 7 of the 10 missions in the DSG. LX(R) will be a versatile, cost-effective amphibious ship—a success story in leveraging mature design while balancing cost and requirements to deliver key capabilities. The lead LX(R) will deliver in time for LSD 43's retirement in fiscal year 2027.

The Navy plans to maintain 11 deployable LSDs in the active force until LX(R) delivers by rotating three LSDs to complete phased modernizations beginning in fiscal year 2016. This will extend USS *Whidbey Island* (LSD 41), USS *Germantown* (LSD 42), and USS *Tortuga* (LSD 46) to a 44 year expected service life. This plan mitigates presence shortfalls and supports 2.0 MEB Assault Echelon shipping requirements.

AUXILIARY SHIPS

Support vessels such as the Mobile Landing Platform (MLP) and the Joint High Speed Vessel (JHSV) provide additional flexibility to the Combatant Commanders. The future USNS Lewis B. Puller (MLP 3), the first Afloat Forward Staging Base (AFSB) variant, was christened in February 2015, and will deliver in summer 2015. USNS Montford Point (MLP 1) completed its integrated testing and evaluation phase this past fall and the Navy continues to explore further use beyond Maritime Prepositioning Force to facilitate expeditionary operations. The Navy awarded MLP 4 AFSB in December 2014, and plans to request MLP 5 AFSB in fiscal year 2017.

The JHSV provides a high-speed, shallow-draft alternative to moving personnel and materiel within and between the operating areas, and to supporting security cooperation and engagement missions. JHSV production continues with delivery of the fifth JHSV anticipated in April 2015. JHSVs 6–10 are also under contract. In fiscal year 2015, Congress provided funding for an eleventh JHSV. The Navy is exploring opportunities to further enhance JHSV's operational profile to support/enhance warfighter requirements such as Special Operations support, Maritime Interdiction Operations, submarine rescue, and ISR missions. Additional research is being applied to the stern ramp to increase its ability to conduct at sea delivery.

The fiscal year 2016 President's Budget requests cost to complete funding for the JHSV program in order to restore funding reduced by fiscal year 2013 sequestration.

Combat Logistics Force ships fulfill the vital role of providing underway replenishment of fuel, food, repair parts, ammunition and equipment to forward deployed ships and embarked aircraft, to enable them to operate for extended periods of time at sea. Combat Logistic Force Ships consist of T-AOE fast support ships, T-AKE auxiliary dry cargo ships, and T-AO fleet replenishment oilers. The T-AO and T-AKE ships serve as shuttle ships between resupply ports and their customer ships, while the T-AOE ships serve as station ships, accompanying and staying on-station with a Carrier Strike Group to provide fuel as required to customer ships.

Navy continued its efforts to mature its concept for the replacement of the *Kaiser*-class (T-AO 187) of Fleet Replenishment Oilers. The new replacement oilers, currently designated as T-AO(X), will be double-hulled and meet Oil Pollution Act 1990 and International Marine Pollution Regulations. The fiscal year 2016 President's Budget request includes the lead ship in 2016 with serial production beginning in 2018. The total ship quantity is expected to be 17 ships. The Department recently announced an acquisition strategy for LHA 8, T-AO(X), and LX(R), and will limit this competition to NASSCO and HII Ingalls.

Beginning in 2017, the Navy plans to begin procuring replacement ships for the four T-ATF 166 class fleet tugs. T-ARS(X) is a recapitalization project to replace the capabilities provided by the four T-ARS 50 class salvage ships. As noted in the Long Range Shipbuilding Plan, the Navy is considering a common hull to replace both the T-ATF and T-ARS; acquisition of a common hull would follow the acquisition approach described for the T-ATF(X) and would preclude the need to acquire a separate T-ARS(X) class.

AFFORDABILITY AND THE SHIPBUILDING INDUSTRIAL BASE

Stability and predictability are critical to the health and sustainment of the Nation's shipbuilding industrial capacity. A healthy design and production industrial base is critical to achieving Department priorities and fulfilling Navy needs. Today's shipbuilding industry, with its interdependent suppliers and vendors, is a complex system where decisions made today have a cascading effect both in the near-term as well as years into the future. Perturbations in naval ship design and construction plans are significant because of the long-lead time, specialized skills, and extent of integration needed to build military ships. Each ship is a significant fraction of not only the Navy's shipbuilding budget, but also industry's workload and regional employment. Consequently, the timing of ship procurements is a critical matter to the health and sustainment of U.S. shipbuilding and combat system industries, and has economic impacts at the regional and local levels. It is important, therefore, for the Department to provide stability and predictability to the industrial base, including key suppliers and vendors, to maintain our ability to continue to build the future Fleet as outlined in the Long Range Shipbuilding Plan.

The Navy has taken specific key acquisition and procurement actions to contain costs and sustain the industrial base, including:

- Stabilizing procurements through block buys and MYPs;
- Increasing competition;
- Controlling costs through stable designs;
- Strictly limiting change orders;
- Conducting targeted reviews;
- Pursuing cross-program common equipment buys; and
- Focusing on affordability.

In addition, the Navy has made investments to support shipyard facility improvements, optimal build plans, conduct of affordability studies, lease for facilities improvement, design for affordability and modularity, combat system open architecture, and shipbuilding capability preservation agreements. These investments support affordability, minimize life-cycle costs, improve and ensure quality products, facilitate effective and efficient processes, and promote competition—which all support Department priorities.

SURFACE SHIP MODERNIZATION

The fiscal year 2016 President's Budget implements the CG/LSD modernization plan as modified by the fiscal year 2015 NDAA and Consolidated and Further Continuing Appropriations Act. This plan will provide the means to retain the best Air Defense Commander and Marine expeditionary lift capabilities through the 2030s. This plan paces the threat through the installation of the latest technological advances in combat systems and engineering in CGs 63–73 and LSDs 41, 42 and 46. As a result, these ships remain relevant and viable, extending the CGs service life

out to 40 years, enabling the Navy to sustain dominant force structure. To date, the Navy has modernized CGs 52–58 with the Advanced Capability Build (ACB) 08 Combat System as well as substantial Hull, Mechanical, and Electrical (HM&E) upgrades, and has nearly completed modernization on CGs 59, 60, and 62 with the improved ACB 12. These investments have allowed the first 11 ships of the *Ticonderoga*-class to remain the world's premier Air Defense Commander platform, fully capable of integrating into the CSG construct or operating independently in support of Combatant Commander demands.

The Navy has developed an affordable framework to retain the remaining eleven cruisers (CGs 63–73) in the active Fleet, through induction into a phased modernization period. Within the guidelines of the fiscal year 2015 Consolidated and Further Continuing Appropriations Act, the Navy will induct no more than two ships per year for no more than four years, and have no more than six ships in a modernization period at any given time. In fiscal year 2015, the Navy is inducting the first two ships, the USS *Gettysburg* (CG 64) and USS *Coupons* (CG 63) into modernization. The fiscal year 2016 President's Budget request inducts the next two CGs, USS *Vicksburg* (CG 69) and USS *Chosin* (CG 65), into modernization in fiscal year 2016.

The Navy will begin the modernization of these ships with material assessments, detailed availability planning, and material procurements. Subsequently, the Navy will perform HM&E upgrades, critical structural repairs, and extensive corrective and condition-based maintenance. These HM&E modernization and repair efforts will commence as soon as possible after entering this modernization period, and will include modernization industrial periods. The HM&E-centric maintenance and modernization industrial periods will include modifications that are part of the Cruiser Modernization program of record, such as structural modifications and maintenance, including tanks and voids, and mission life extension alterations. Other preparatory work for the combat system modernization, such as equipment removal and space preparations may also be accomplished during these periods. These modernization industrial periods can be scheduled at times when there is a shortage of work in the various homeports, thereby leveling the work load and effectively utilizing industrial facilities. Without the pressure of meeting near term Fleet deployment schedules, the work can be planned in the most economical and efficient manner, including reducing the need for costly overtime rates and hiring subcontractors to supplement shipyard workforce. The final phase will include combat system installation, integration, and testing. This will occur concurrently with re-crewing the ship, immediately preceding re-introduction to the Fleet. With combat systems modernization occurring immediately prior to restoration, these ships will have the latest combat systems upgrades, thus mitigating the risk and cost of technical obsolescence. The Navy intends to draw down the manpower for these CGs during their modernization, to reduce the cruiser costs during the period. The plan is to complete modernization of each cruiser on a schedule that sustains 11 deployable Air Defense Commander CGs (one per Carrier Strike Group) into the 2030s. Under the Navy's original phased modernization plan proposed in the fiscal year 2015 President's Budget, the final CG retirement would have occurred in 2045, at a significantly reduced cost to the Navy, and would have relieved pressure on the shipbuilding account largely consumed in the 2030s with building OR SSBNs and aircraft carriers.

Similarly, the Navy plans to perform the final *Whidbey Island*-class midlife modernization as well as to extend two LSDs through this plan. This plan completes the HM&E midlife and modernizes combat systems/command, control, communications, computers, collaboration, and intelligence on USS *Tortuga* (LSD 46) (thereby achieving 40 year expected service life), while providing for additional post-midlife modernization for USS *Whidbey Island* (LSD 41) and USS *Germantown* (LSD 42). LSD 41 and 42 will receive additional structural, engineering, and combat systems modernizations to extend their expected service life to 45 years. LSD 46 will be inducted into modernization in fiscal year 2016.

The fiscal year 2016 President's Budget also includes funding for the modernization of four destroyers. To counter emerging threats, this investment is critical to sustain combat effectiveness and to achieve the full expected service lives of the Aegis Fleet. The destroyer modernization program includes HM&E upgrades, as well as advances in warfighting capability and open architecture combat systems. This renovation reduces total ownership costs and expands mission capability for current and future combat capabilities. However, due to fiscal constraints, we were compelled to reduce the combat system modernization of one DDG Flight IIA per year starting in fiscal year 2018.

CONNECTORS

The Seabasing Joint Integrated Concept requires surface and vertical lift capability to transport personnel, supplies and equipment from within the sea base and maneuver them to objectives ashore. Surface and aviation connectors with enhanced speed and range will provide future expeditionary force commanders greater flexibility to operate in contested environments. While the aviation component of our connector capability has seen significant modernization with the fielding of the MV-22 and continuation of the CH-53K program, our primary surface connectors, the landing craft air-cushion (LCAC) and the Landing Craft Utility (LCU) are reaching the end of their service life and require modern replacements.

The President's fiscal year 2016 Budget includes the Ship to Shore Connector (SSC) air-cushioned vehicles as the replacement for the aging LCAC while also continuing investment in the LCAC service life extension program (SLEP) of 72 active LCACs to mitigate the gap as the SSC is developed and fielded. A planned Surface Connector (X)-Recapitalization (SC(X)) program will recapitalize the aging LCU 1610 class.

These platforms are essential in connecting the combat power and logistical sustainment that the sea base provides, with the forces that are operating in the littorals and inland for all missions. The Department will continue to explore future connector options that will increase our ability to exploit the sea as maneuver space by increasing range, speed, and capacity.

SUMMARY

The Department of the Navy continues to instill affordability, stability, and capacity into the shipbuilding, aviation, and combat vehicle plans to advance capabilities and meet the DSG and Fleet mission requirements. Our force is focused on global reach and access with investments to enable global presence, sea-control, mission flexibility, and when necessary, interdiction.

Continued Congressional support of the Navy's plans and budgets will help sustain a viable shipbuilding industrial base. The fiscal year 2016 President's Budget request funds nine ships: two DDG-51 destroyers, three LCS, two *Virginia*-class submarines, one LPD 17, and one T-AO(X). The request supports the right balance between requirements, affordability, and the industrial base.

The Department of the Navy stands ready to answer the call of the Nation. We thank you for your continued support of the Navy and Marine Corps and request your support of the fiscal year 2016 President's Budget for the Department of the Navy.

Senator WICKER. Thank you, Secretary Stackley.
Vice Admiral Hilarides.

STATEMENT OF VADM WILLIAM H. HILARIDES, USN, COMMANDER, NAVAL SEA SYSTEMS COMMAND

Admiral HILARIDES. Thank you, Chairman Wicker, Senator Hirono, distinguished members of the committee. Thank you for inviting me to take part in this hearing. I am honored to be here.

I would like to just echo one thing that Secretary Mabus said during his—one of his hearings last month. We would not have the fleet to put to sea without our Navy civilians. They are the scientists, engineers, designers, contract officers, and acquisition professionals who oversee the construction of our newest ships and do so much of the repair work on our in-service ships.

As you might remember, the Naval Sea Systems Command (NAVSEA) family lost 12 shipmates during the shooting at our headquarters on September 16th, 2013. We are just now getting back to normal, with the last of our people returning to their permanent offices in the Navy Yard this week. Over the last 18 months, I have been a first—have seen firsthand the absolute dedication of these Navy civilians to our Nation and our Navy. Despite the tragedy, they remained focused on supporting the fleet, and we

didn't miss a beat. I owe it to my people to recognize them in this forum.

Thank you for the opportunity, and I look forward to answering your questions.

Senator WICKER. Thank you. I'm sure those individuals appreciate that recognition.

Vice Admiral Mulloy.

STATEMENT OF VADM JOSEPH P. MULLOY, USN, DEPUTY CHIEF OF NAVAL OPERATIONS, INTEGRATION OF CAPABILITIES AND RESOURCES (N8)

Admiral MULLOY. Sir. Chairman Wicker, Ranking Member Hirono, and distinguished members of the subcommittee, I'm honored to be here today to testify on your Navy's seapower power-projection forces. I look forward to working with you all this year.

In developing our 2016 President's Budget, we carefully analyzed what our Nation needs in order to meet the missions of the defense strategic guidance in the most recent Quadrennial Defense Review. This analysis looked at ends, ways, and means necessary to, one, fight and win today's wars while building the ability to win tomorrow's; to operate forward to deter aggression; and be ready to fight and responsibly employ our diverse force. We remain committed to rebalancing the majority of our naval forces to the Asia-Pacific, with approximately 60 percent of our ships and aircraft in that region by 2020. However, with the reality of current budget—Federal budget limitations and our commitment to do our part in bringing our Nation's fiscal house in order, we have made many difficult choices to best balance capacity, capability, readiness, and the industrial base, and still meet the missions of the defense strategic—pardon me—defense strategy, albeit with some risk.

Our 2016 budget represents what we feel is the minimum needed for your Navy to continue to be where it matters, when it matters. It reflects the difficult choices and actions we had to take due to shortfalls over the last 3 years. We are down \$25 billion due to sequestration in 2013 and the Bipartisan Budget Act in 2014–2015. It has to stop. We hang on and make do. But, the threats we face don't have to make do. Thus, any reduction in 2016, whether it's from sequestration or action by Congress to set some level in between, will be extremely challenging. If limited to sequestration-level funding, the Nation would need to think about what kind of military we can afford, how we would need to reprioritize our missions in that situation. This analysis would need to factor in the global environment, the Nation's defense priorities, America's role in the international security environment, and the capabilities and threats of our adversaries, as well as the timing of sequestration and method of implementation. That analysis will dictate what kind of cuts would be required.

We have to do the analysis first, revise the defense strategy before taking specific impacts. We fight as a joint force, we must adjust as a joint force.

We ask you for your support in providing the strategy-based naval force that our 2016 budget would sustain, and avoid the budget-based military that sequestration would bring.

I look forward to answering your questions.

Senator WICKER. Thank you very much, gentlemen. We appreciate your testimony.

I'm going to defer my questions until later on, and recognize Senator Ayotte to begin the questioning.

Senator AYOTTE. I want to thank the chairman and ranking member.

I want to thank all of you for what you do for the country, and especially the sailors and marines and the civilian workforce that work underneath you to keep our country safe.

I wanted to follow up with what you said, Admiral Hilarides, about the civilian workforce. You know, as you know, as we look at the great work done at the Portsmouth Naval Shipyard, which I know that Senator King shares in the pride we have, of course, in the shipyard, this is a very important component of the shipyard. So, can you tell me how the shipyard's doing and—from your impression?

Admiral HILARIDES. Yes, ma'am. Happy to report that Portsmouth Naval Shipyard is currently delivering its availabilities on time. They are meeting all their benchmarks and are performing at a very high level. They support additional detachments out in San Diego. They're doing in-service submarine work there, as well. We do have a bump in hiring at Portsmouth that'll help bring them to their full capacity. But, I'm pleased to report that Portsmouth's doing very well, ma'am.

Senator AYOTTE. Well, that's great. We're also really proud—I understand, on the *Topeka*, the *California*, and the *Springfield*, they were able to perform ahead of schedule. So, we hope to do more of that.

Admiral HILARIDES. Yes, ma'am.

Senator AYOTTE. Very proud of them. So, thank you.

I wanted to follow up in that regard on the importance of our attack submarine fleet. I know that the chairman, in his opening statement—and, I believe, the Ranking Member, as well, may have referenced—when it comes to the *Virginia*-class submarines, as we look at the retirement of the *Los Angeles*-class, which is happening more quickly, we're going to be in a position where the current number of attack submarines will drop, in the next decade, from about 54 now to about 41, yet—what's been the request, in terms of the need by our combatant commanders, for attack submarines? As I understand it, we're only meeting about half of their requests, at this point.

Admiral HILARIDES. Yes, ma'am. We're meeting approximately 54 percent of their request for our forces out there right now, with the submarine force we have.

Senator AYOTTE. So, one of the things, as we look at going forward, it seems to me very important that we stay on track to continue building the two *Virginia*-class submarines a year. Otherwise, we're going to have a pretty significant gap, in terms of our capability that we need to defend the Nation and the need for the attack submarine fleet. Would you all agree with me on that?

Mr. STACKLEY. Yes, ma'am.

Senator AYOTTE. How important is it that Congress provide reliable and sufficient funding so the Navy can fully implement the Block-4 multiyear procurement contract, going forward?

Mr. STACKLEY. Well, the basis of the savings that we're achieving in the Block-4 contract are all tied to stability of funding. So—
Senator AYOTTE. Right.

Mr. STACKLEY.—when we came forward with a certification on multiyear and basically took credit for the savings, that was all predicated on future budgets being supported in a timely manner.

Senator AYOTTE. I also wanted to follow up—as we look at the reduction in the capacity for—the undersea strike capacity that all of us are worried about—I know recently, before the full committee, the Chief of Naval Operations said that they're studying—that you are all studying whether the *Virginia* Payload Module (VPM) program could be accelerated. Could you comment on that?

Mr. STACKLEY. Yes, ma'am. The—what's referred to as VPM is an upgrade that's targeted for the first boat of the follow-on Block-5 multiyear in fiscal year 2019. We cannot restore the capacity of the SSGNs fast enough, because they're going to go out in a 3-year period, in the mid-2020s. With each SSGN—they carry 154—the capacity for 154 Tomahawks. So, with VPM, we add 28 Tomahawk capacity per *Virginia*. So, as you can see, you know, just doing the math, we have to, basically, include VPM for a long period of time. It's about 22 boats, in total, that make up the capacity that you lose. The earlier we can get started on that, the better.

So, what we have done is—working with industry, is, rather than settle for the first boat in 2019, we've asked to take a look at: Is it feasible to accelerate that to fiscal year 2018? That analysis has just started, frankly, and we'll get a first look at that, at the end of this month, with more details later on this summer.

If we are able to do that, that will help to just buy down some of that risk associated with the SSGNs retiring. But, at the same time, we have to be very mindful of the amount of work that's coming our way, in terms of submarines, because we'll have *Virginia*, we'll have the introduction of VPM, and we'll have the *Ohio* replacement all in that period of time. So, the ability to accelerate VPM cannot be done at the expense of stability across the rest of our submarine programs.

Senator AYOTTE. Well, I'm really appreciative that you're looking at this acceleration, given the need that we know is very apparent. So, I appreciate the need, obviously, to look across the whole Navy to be able to perform what you need to do with the *Ohio*-class, as well. But, I'm—this acceleration, I think, would be very important, in terms of our undersea strike capability.

Do you—you were saying, Mr. Secretary, that you expect that the study on this may be—when can we expect to hear your results?

Mr. STACKLEY. I'm going to get a quick look. What I've asked is, first, is it feasible? Second, is it sensible? It might be feasible, but, given everything else we have going on in submarines, it might not make sense to do, it might add more risk than it's going to resolve. Third, if it is feasible and sensible, what do we need to do, in fiscal year 2016 specifically, to ensure we retain the option of going forward?

Senator AYOTTE. Well, that's excellent, because, obviously, I think that's something that this committee would be very interested in working with you in the upcoming authorization.

So, thank you all for what you do for the country.

Senator WICKER. Thank you, Senator Ayotte

Our Ranking Member is also willing to defer questions to a later time in the hearing. The order of questioning will be Senator Kaine, followed by Tillis, King, Rounds, and Sessions.

Senator Kaine.

Senator KAINEN. Thank you, Mr. Chair.

I've never been in a hearing where the Chair and Ranking have deferred. It's the last-shall-come-first day. So, that's a good thing.

The comments that you made about the civilian workforce at the Navy yard, here, is an important one, and I want to pick up to begin on what Senator Ayotte indicated. Your written testimony is an eloquent tribute to the combined nature of—there are sailors, but also the civilian workforce; and the contractors, who are part of the broader mission, are critical; and the stability of that workforce is critical; and sequester and other budgetary actions over the last few years have jeopardized that. I was recently at one of our ship repair facilities in our Portsmouth—Portsmouth, Virginia—and ships that were in dock undergoing repair, the commanding officers of the ships were standing there, pointing out the workers, and they were saying, you know, "They are like sailors, to me. You know, the work that they do is every bit as important as the folks who are onboard the ship." That sense of teamwork is a powerful feature of what you do. So, I commend you for recognizing that in your testimony.

I want to get into some specifics on the shipbuilding. We've had testimony from the Chief of Naval Operations (CNO) Greenert, and, Secretary Stackley, I know you have followed this, as well. Secretary Mabus recently said he wants to protect shipbuilding at all costs. But, if we do not receive sequester relief, there—I think it's—Secretary Mabus indicated that up to nine ships will not be completed during the Future Years Defense Program (FYDP) if the sequester occurs. If we do not get sequester relief, how would the Navy approach this issue of which platforms don't get done?

Mr. STACKLEY. Yes, sir. Let me first by—I'm just going to reiterate and reemphasize exactly what Secretary Mabus said.

Senator KAINEN. Great.

Mr. STACKLEY. Our first priority is going to be placed on shipbuilding, because it takes 30 years to build a Navy. It does take 30 years to build a Navy. Senator Ayotte referred to the gap that we've—that we're staring at in the out years associated with *Virginia*. That gap is based on decisions that were made 10 to 15 years ago about going down—you know, our ability to get up to 2 per year. So, that—those decisions, 10 to 15 years ago, impact the fleet's ability in the late 2020s and 2030s. We cannot do that lightly. So, regardless of what happens in the budget, our first priority will be to take care of shipbuilding, in accordance with the force structure assessment that the CNO submitted in the 2012 time-frame.

The impact of sequestration, the magnitude of it, what the Secretary was referring to was our ability to protect it, to the extent that we have submitted our—you know, the plan inside the FYDP in the 30-year report. That's at great risk. So, while it will be a top priority, we are going to have to go back and defend, line by line, ship by ship, what stays and what is placed at risk, in the event

of sequestration. I can tell you that, today, we have not done that. We have not gone down the path of making reductions to our shipbuilding plan, because, one, we believe that is the size and shape of fleet that we need to meet our security requirements. So, we're not going to be the first one to go down that path. In all cases, what we do is, we look to balance our force.

So, across the spectrum, from carriers to submarines to surface escorts to amphibs to auxiliary ships, we need a balanced force to meet the full range of missions and to, basically, support the degree of presence that's called for upon our Navy to keep about a hundred ships deployed constantly across the globe.

So, if you're looking for specifics, in terms of what we would cut in our shipbuilding program in the event of sequestration, my first response is, that's the last thing we would cut. Then, if we are handed the bill, if, in the end, Congress' decision is that we are going to drop the defense budget, then we're going to have to take a hard look at that balanced force and how much of it we've got to retain to minimize the risk to our National security.

Senator KAYNE. That gives me a sense for how you'd approach the challenge, which I hope we don't have to approach. Together with others who serve both on the Budget and Armed Services Committee, I'm very committed to working to try to minimize the sequester impact.

Mr. STACKLEY. Not to interrupt you or belabor the point, but, just last year, before this subcommittee and the full committee, the discussion and debate was over the CVN-73 *George Washington*, where that did not come forward in the 2015 budget request, and the basis for that not coming forward was the concerns regarding the impact of sequestration and whether or not we would start something that we could not complete under that reduced budget. So, that's an example of the significance of the impact of sequestration on our force.

Senator KAYNE. I appreciate my colleagues working together last year to make sure that we were able to avoid that.

I commend you, Secretary Stackley, and your team. You kept—the *Ford*-class carrier obviously is a huge issue every year in this committee, but, for the last 3 years, you've held that project within cost caps. I know some of the challenge with the cost of that has been the new systems that have been installed, the propulsion and other systems. But, I gather that, just from your last comment, that carrier refueling is one of the things that would be in jeopardy if you were forced to change the budget downward to the sequester cap level.

Mr. STACKLEY. I am not offering that, sir, but if you just replay the tape from last year, that's where the debate was.

Senator KAYNE. Last question I want to ask deals with the *Ohio*-class replacement. I guess there's a current cost-shift estimate of—4.9 to 5.3 billion is the current estimate. How confident are you—is the Navy with that current estimate for the *Ohio*-class?

Mr. STACKLEY. We have a pretty intense cost-reduction effort in place with the *Ohio* as it's being designed. So, we're not—we did not take the requirements, pass them over to the design community, tell them to design the boat, then estimate the cost and figure out—then figure out how to get the cost down. We are—we set the

cost targets and caps on this boat from the—on the front end. In fact, we adjusted the requirements on the front end to get the cost estimates down. Then, as we go, as we mature that design, we are continually updating the cost while inserting good cost-reduction initiatives to keep it in the context or framework of the targets that we've set.

So, actually, the initial cost estimate for the follow boats—boats 2 through 12, on average, was about \$5.8 billion, in 2010 dollars. We base-date it. Through this cost-reduction program, we're—to-day's estimate, using our cost-estimating community's standards, is about \$5.2 billion a boat. So, we're not at the 4.9 target that we set for ourselves yet, but we're continuing to attack opportunities.

In terms of degree of confidence, I can only say that affordability has been a touchstone for this program from day one. We have certain requirements that we've got to drive home in order to ensure that the *Ohio* replacement meets the degree of performance that we count on for our strategic deterrent force. But, at the same time, we are finding opportunities to leverage mature technologies, we're porting over systems from *Virginia*, from the strategic weapons systems, so we're avoiding development and risk in that regard. So, the focus of new development or new design is really on some unique aspects of the *Ohio* replacement, where we've got our arms wrapped around it.

I'd say today our confidence—you know, I would never go much above moderate confidence at this stage, but the entire enterprise has an eye on affordability each step along the way. That includes the CNO. The CNO is the requirements officer on this program. As we track, jointly, cost—as we go through the development, he has his hand on the helm to ensure that, if we need to go further, in terms of adjusting requirements, where it makes sense to keep cost under control, we'll do that.

Senator Kaine. Great. Thank you, Mr. Secretary.

Thank you both.

Mr. Chairman.

Senator WICKER. Senator Tillis.

Senator TILLIS. Thank you, Mr. Chair.

I want to talk a little bit about the Marine Corps mission. The Commandant of the Marine Corps has frequently stated that the combatant command requirement for amphibious ships would exceed 50. The absolute minimum number to meet the demands of the Marine Corps, I think, is somewhere around 38. Yet, we have 30 operating today, and we'll never attain an amphibious fleet of more than 34 across the 30-year shipbuilding plan. I'm kind of curious. I know that Senator Wicker was first among other Senators who worked to provide funding, I think, for the 12th landing platform dock, and—the authorization, and then, I think, some partial funding in 2014. What more do we need to do to address this gap?

Mr. STACKLEY. Sir, let me start with the 50, if I can, and walk you through. I would say 50 amphibs reflects combatant commanders' demand because of the flexibility that the amphibs provide to the operating forces. It is an extremely flexible platform for operations against a full range of scenarios. So, they're in high demand, but at no point in time do we have a plan to build that many amphibs. The—our requirement for amphibs is—

Senator TILLIS. I'm thinking more along the minimum requirement of the 38.

Mr. STACKLEY. Yes, sir. So, our requirement for amphibs is driven by major combat operations, and specifically it's the ability to provide amphibious lift for two marine expeditionary brigades. The number of ships required to do that is 30. That's a 30 mix of big-deck amphibs, LPDs, and LSD-41 class or their replacements.

So, in order to provide 30 for major combat operations, notionally you require 38 amphibs, recognizing that some number will be in depot maintenance and otherwise unavailable for the operations. Five years ago—

Senator TILLIS. What is the trajectory for 34 over the next 30 years?

Mr. STACKLEY. I'm sorry, sir?

Senator TILLIS. Am I correct that we're talking about attaining somewhere around 34—

Mr. STACKLEY. Yes, sir.

Senator TILLIS.—across a 30-year period? How does that fit with the needs?

Mr. STACKLEY. Yes, sir. So, 34 was an agreement between the CNO and the Commandant, approximately 5 years ago, that recognized a couple of things. First and foremost, it recognized just the fiscal environment that we're in. So, the decision was that there will be some risk accepted, in terms of the ability to provide the full capacity of lift for two marine expeditionary brigades. In other words, some elements of the 2 Marine Expeditionary Brigades (MEB's) would come in a follow-on echelon if we could not produce 30 amphibious ships of the right mix for the major combat operations.

Senator TILLIS. Over the time horizon, I think your 5-year budget has the first LX amphibious dock landing ship scheduled for procurement in fiscal year 2020. In talking about the long-term shipbuilding plan, there are always risks of other costs and surprises, going forward. So, should we consider accelerating the procurement of this ship, in view of the looming pricetag for the *Ohio* replacement plan, beginning, I think, in fiscal year 2019?

Mr. STACKLEY. Yes, sir. So, today we have advanced procurement for LX(R) in fiscal year 2019. The timing of the LX(R) is directly coupled to the retirement of the ship class that it's replacing, the LSD-41/49 class. Over the course of the past year, in terms of our budget profile, what we have done is, we've brought the follow ships of the LX(R) program to the left to mitigate that risk. We have not been able to bring LX(R), the lead ship, to the left, simply because of all the competing priorities in the budget.

To specifically answer your question, "Would it help, in terms of risk?"—it would help, in terms of risk, but then it becomes a matter of, Where have we shifted that risk?

Senator TILLIS. By the way, any of—at any point, if the other gentlemen want to weigh in, I'd be happy to hear your thoughts.

Admiral MULLOY. Yes, sir. I'd like to comment.

In terms of—you're right for the time of being not above 34 during this 5-year defense plan. But, when you look at the 30-year shipbuilding plan, of which it's still under review in the Pentagon, but the tables have been provided to the committee, we achieve 38

amphibs in 2028, and actually have—we start getting above 34, grow to that point, and then we stabilize at 36 or 37. That year that we hit 38 is the year before the submarine force hits the bottom, so that's the tradeoff we talked about in shipbuilding, is that I—at the same time I am building amphibs, I am coming down on submarines, then there's nothing we could do, because, 15 years ago, we went a number of years with no fast attack submarines (SSNs), and then we went one a year for 7 years. So, we have to make a tradeoff of what we accelerate to build.

But, we will build in the 30s, and stay in the mid-30s throughout the period of this 30-year shipbuilding plan. We actually get to 38 in 2028 and stay at 36 or 37 after that if we get the funding of PB-16 and the full FYDP.

The one other question about sequester funding is, it requires stability. Because the Budget Control Act law is written one year at a time, we submit a budget of one year at a time. We have to have some expectation from the Hill that the other years will come when you sign multiyears for 10 submarines. When I sign up to be a large-deck amphib that builds over 2 years, the commitment for LHA-8 is that, in 2017/2018, the money arrives. The commitment for LX(R) is that the money arrives in 2021. So, as the Navy's Chief Financial Officer, I've got to look at those projections. The shipbuilding tables I give you are only based upon the strength of what we get back from the Budget Committee and the Armed Services Committee.

Senator TILLIS. I'd add—this would be a general question for all of y'all so I can stay within my time. We heard a testimony in the Senate Armed Services Committee from a general who said that we want an Armed Services who would never allow our men and women to enter into a fair fight. In other words, we always want to have overwhelming capacity, regardless of the category. You all have been very good at just stating that you're working within the confines of the money you're provided. But, with respect to the Navy, where there seems to be a diminishing level of capacity, and then you look at other countries which seem to have an increasing level of capacity, at what point in time do we actually enter a fight with our fleet that is a fair fight? In other words, we're matched up pretty well. Is that a time that's ahead of us in the near future with some of the countries that are clearly building an increasing capacity?

Thank you.

Admiral MULLOY. There is no time in the immediate future. But, I will tell you, if we don't provide some kind of economic stability, that that point would be—you know, we get closer. I think right now we've laid out what we think is a coherent plan and a strategy. We recently rolled out the maritime strategy that talks about how we engage around the world. The risk of the unknown is, there are competitors on the Eurasian landmass that are rapidly developing high-tech weapons that target us and target our assets around the world. Then we're also engaged with a number of other lower-tech countries. The proliferation of weapons is a real threat. Therefore, I think we've laid out—as the President's Budget fiscal year 2016 (PB-16) plan for that 5 years and the 30-year plan after that are important to us.

I can't give you a year when that would pass, sir. We have a preponderance of events. We have phenomenal sailors and marines out there on our ships, and phenomenal pilots; and everyone's engaged to be ahead. But, the importance is to do the research, development, test, and evaluation (RDT&E) and the construction through every asset of our industrial base to build the overwhelming capability, as well as the capacity, to take on the threats to national security, sir.

Senator WICKER. Thank you, Senator Tillis.

Senator TILLIS. Thank you, Mr. Chair.

Senator WICKER. Senator King.

Senator KING. Thank you, Mr. Chairman.

Mr. Stackley, one—Secretary Stackley—one specific question. Last May, in response to a request, the Navy stated the Navy position is that the 2002 memorandum of understanding, the so-called Swap-1 agreement, remains in full force and effect and requires the Navy to award a DDG-51 or equivalent workload to Bath Iron Works (BIW) if the Navy awards the LPD-28 on a sole-source basis. Now, I understand, in this budget, that's happening—the LPD-28 funds are going to be completed. Does that—what I just read from the response we got from the Navy, is that still the Navy's position? Because we got a response recently, just this week, that indicated you're considering options. I trust that means you're considering how to fulfill that, not whether or not it still exists.

Mr. STACKLEY. Yes, sir. Let me, first, describe that the opening statement of that swap agreement talks about, "In order to provide stability for a shipbuilding industrial base"—

Senator KING. Right.

Mr. STACKLEY.—"and affordability for our ship programs, then the following." In 2002, both shipyards were in peril in—that were involved in the swap. So, what that swap did was help stabilize both shipyards.

At the time, the LPD-17 program, the ultimate quantity, of 10 versus 11 versus 12 ships, was undecided, so what was left open was that, in the future, if further LPDs are awarded, then a commensurate DDG-51 or equivalent would be awarded to Bath Iron Works to balance out the swap agreement.

In the past 13 years, it's been a very dynamic shipbuilding program back and forth between the two shipyards. So, if we were to simply reassess, "Are we today stable—relatively stable across the two shipyards, across the shipbuilding program?"—you might get a different answer from, "Are we, or are we not, one-for-one, in terms of parity regarding the swap agreement?"

What we are doing is, we're taking a look at, first, the state of the two shipyards, what it would infer, in terms of an LPD-17—further LPD-17 being awarded to Ingalls, in accordance with our budget request, and then what would be commensurate at BIW to balance that out. We have had very preliminary discussions with industry. The award of that LPD—the LPD-28 would be late in 2016. So, we believe we have time and tools available to balance out that agreement with both shipyards.

Senator KING. But, it is your intent to follow through on the phrase you're using as "balance out."

Mr. STACKLEY. I think “balance out,” because what we’re down to looking at is workload and timing of that workload. The timing for the LPD-28 award might not be the right time for a balance—the balancing of workload at Bath Iron Works.

Senator KING. Fine.

On the larger question, I really appreciate the report that was submitted a couple of weeks ago—I would commend it to my colleagues—on the Navy shipbuilding industrial base. It’s sobering reading, particularly a chart on—let’s see, trying to find the page number—well, it’s Figure 4.5, which indicates that shipbuilding employment, which averaged about 60,000 throughout the country for the last almost 20 years, is now down by a third.

Mr. STACKLEY. Sir.

Senator KING. That’s a—employment is part of the picture. Also, investment and the web of suppliers that’s at risk. I—my concern is that decisions we make today—if we don’t replace sequestration, decisions we make today to defer shipbuilding programs will have 30-year consequences that we can’t foresee. Is that your view?

Mr. STACKLEY. Yes, sir. The—we have several shipyards in our industrial base that are in a very fragile position, and—

Senator KING. We don’t have that many shipyards to—it’s not like we have 50 shipyards out there.

Mr. STACKLEY. We have—as I described in my opening statement, we have eight shipyards currently building U.S. Navy ships. Of those eight shipyards, about half of them are a single contract away from being what I would call “not viable.” In other words, the workload drops below the point at which the shipyard can sustain the investment that it needs to be competitive and the loss of skilled labor that comes with the breakage of a contract. They’d be challenged to be able to recover that skilled labor. So, they would quickly find themselves outside of the market.

Senator KING. What that results in is a lack of capacity to meet the country’s needs, both now and certainly in the future.

Mr. STACKLEY. You lose capacity, and you also lose competition.

Senator KING. Losing competition means that you don’t—the Navy doesn’t get the best price.

Mr. STACKLEY. Yes, sir.

Senator KING. The other problem, as I understand it, is that it makes it very difficult, the current budgetary situation, to do multiyear contracts, which is another way the taxpayers can save money on these projects.

Mr. STACKLEY. I think that Congress has been very helpful with regards to multiyear. As we are able to bring forward the business case that argues for a multiyear contract, where the savings are achieved, Congress has been supportive of those cases. So, today the *Virginia* multiyear has been successful. We’re hitting the targets on that contract. The DDG-51 multiyear, likewise. So, as we’re able to bring the business case forward, Congress has been supportive.

Senator KING. But, the—if the—if we reimpose sequestration this year, as you’ve testified, that would be a severe impact across the board.

Mr. STACKLEY. What that undercuts is our business case, because it destabilizes the shipbuilding program, and it makes it

harder for us to be able to certify that we're going to be—that we have enough stability in order to come forward with that multiyear request.

Senator KING. Well, most of us have been in hearings in recent weeks with regard to what our potential adversaries are doing, particularly China and Russia. They are on a very aggressive—

Mr. STACKLEY. Yes, sir.

Senator KING.—buildup in both areas. It would be ironic and dangerous, it seems to me, to be following the opposite course.

Mr. STACKLEY. Concur.

Senator KING. Thank you.

Thank you, Mr. Chairman.

Senator WICKER. Thank you, Senator King.

Let me—before I recognize the distinguished chairman of the committee, let me just follow up.

I think Senator King has engaged in a very important line of questioning about the importance of all of our yards. Would it be fair to say, Mr. Stackley, with regard to the Memorandum of Understanding (MOU), that you've been in constant conversation and contact with both Ingalls and BIW on this issue and on your thoughts about fulfilling this, as Senator King was asking?

Mr. STACKLEY. Sir, I've been in dialogue with the CEOs of both Huntington Ingalls industries and General Dynamics since the Navy's budget came together requesting the balance of funding for the LPD-28.

Senator WICKER. Okay. Thank you.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

Secretary Stackley, what—on the issue of the *Gerald R. Ford*, the Director of Operational Test and Evaluation annual report says, “The reliability of four systems—the electromagnetic aircraft launching system, advanced arresting gear, dual-band radar, and advanced weapons elevators—are most significant risk to the USS *Gerald R. Ford* initial operation, test, and evaluation.” What’s the status?

Mr. STACKLEY. Yes, sir. Let me take them one by one.

The electromagnetic aircraft launching system and the advanced arresting gear were both land-based tested at our facility at Lakehurst, in New Jersey. So, what we have is a—

Senator MCCAIN. You might just summarize. I've only got 5 minutes.

Mr. STACKLEY. Yes, sir.

Today, the land-based testing associated with Electromagnetic Aircraft Launch Systems (EMALS), advanced arresting gear, dual-band radar, and the weapons elevators has all been satisfactory, but each of those programs is on what's referred to as a reliability growth curve. So, what we have to do is get deeper and deeper into the test program, get the ship operational to climb that curve to ensure that we meet the reliability requirements that we've established for the program.

Each of those is on the curve, with one exception: the advanced arresting gear. We've had to make some changes to that design of a key component called the “water twister,” and had to go back into

testing at Lakehurst. So, we're completing that additional testing to ensure that we have that correct.

Senator MCCAIN. Of course, I've been intensely curious why we needed to change things like arresting gear and aircraft launching that have been tested and proven over many years to be reliable, as far as information I have.

On the LCS, the mine countermeasure mission package is more than 4 years behind, won't achieve full capability until 2019. Again, Director of Operational Testing and Evaluation, "The Mine Countermeasure (MCM) package has not yet demonstrated sufficient performance to achieve the Navy's minimal Increment 1 requirements."

Mr. STACKLEY. Yes, sir. We conducted developmental testing for the mine countermeasure mission package last year. We conduct what's referred to as a "technical evaluation," starting in April. The *USS Independence* is today at Panama City, gearing up for that tech-eval. We then proceed into operational testing for that increment at the end of this year.

So, today there remain risks associated with completing that testing, but we are executing in accordance with the plan that I presented to this committee a year ago.

The final increment—the mine countermeasure capability, is delivered in increments—the final increment is an unmanned surface sweep system. That, in fact, is scheduled for completion in 2019. That has been delayed and stretched, largely because of budget reductions over a number of years. So, today that is the last piece that completes the MCM capability.

Senator MCCAIN. By 2019.

Mr. STACKLEY. Yes, sir. We'll have a system out and testing in the 2017 timeframe. Today we have developmental models for that capability. But, it's—it replaces—it will replace the 53s, in terms of their sweep system. The capability that we have with the early increments replaced the capability that we've got for the MCMs that are currently forward deployed.

Senator MCCAIN. Admiral Mulloy, if you want to replace the Tomahawk, the next-generation land-attack weapons, is it true it's not due to enter service until 2024 at the earliest?

Admiral MULLOY. Yes, sir, that's true. That's our best estimation.

Senator MCCAIN. Then does it make sense to stop procurement of the existing Tomahawk missile?

Admiral MULLOY. Sir, we've been studying this now for the last year or so, and, as we looked at—developed the 2016 budget, we believe the 100 weapons in 2016, along with the funding provided by Congress for the ones that were actually fired against the beginning of the contact against the Islamic State of Iraq and the Levant (ISIL), the 47, when merged with 2015 procurement, will provide weapons on the floor of the factory through—into 2018 being produced. We started the recertification line, which will recertify and also upgrade the existing 3,700 Tomahawks we have. Starting in 2017, they start the recert line. In 2019, we are full recert. So, we see actual production into 2018, recertification of those weapons, providing significant firepower that greatly exceed—that would be 37 years worth of our average use of that weapon, sir.

Senator MCCAIN. Did I understand you correctly? You say that you would have a replacement—by when?

Admiral MULLOY. No, this would be a recertification upgraded of the Block 4 weapons. In 2019, we'd actually start rolling out weapons that came due for maintenance, rather than being decommissioned, would be then taken through the factory floor, recertified, new radios put in. We're also looking at follow-on items that could be further upgraded on that weapon while we still continue the path of the Offensive Anti-Surface Warfare (OASUW) and Next Generation Lance Attack Weapon (NGLAW).

Mr. STACKLEY. Sir, can I add?

Senator MCCAIN. Yeah.

Mr. STACKLEY. What Admiral Mulloy is referring to is the factory floor's view. Separate—I've discussed this with the CNO—there is risk associated with the next-generation mine attack weapon, that we're very early on, in terms of justifying its requirements and that development program. We are one of one mind that what we've got to do is ensure that is stable before we simply truncate production of our cruise missiles. So, we—this will be revisited—excuse me—this will be revisited, in conjunction with our Program Objective Memorandum, fiscal year 2017 (POM-17) review.

Senator MCCAIN. Are you concerned about the effects of a production gap on the second- and third-tier Tomahawk suppliers in their ability to provide an efficient transition from production to the beginning of the recertification of the Block 4 missiles in 2019?

Mr. STACKLEY. Sir, the answer is yes. We've had our Defense Contracts Management Agency do a complete review of Tomahawk suppliers—and I'll provide this report to the Hill, interested committees, members, to get a look at how detailed that is—to highlight which suppliers are placed in jeopardy by a break in production versus which suppliers carry through in the recertification program. So, there are a handful of suppliers that are of particular concern. We're working with Raytheon as we take a look at this.

Senator MCCAIN. You are totally confident that the next-generation, next-production aircraft carrier, that the cost will be under control.

Mr. STACKLEY. I think you're referring to CVN-79, the *John F. Kennedy*.

Senator MCCAIN. Yes.

Mr. STACKLEY. Today, it's \$11.5 billion cost cap, and that's our budget that we've submitted. Separately, we—

Senator MCCAIN. You submitted a \$10 billion cost cap for the *Gerald R. Ford*. I'm asking—

Mr. STACKLEY. Yes, sir.

Senator McCain:—are you confident that the next aircraft carrier will be at the cost as you just—11.4, or whatever it is?

Mr. STACKLEY. Yes, sir. Let me simply state that we're driving our—what we call our allocated costs well below the \$11.5 billion so that we have a margin and our contracts are being contained within fixed-price vehicles. So, today, for all that we know, all that we understand, we are confident.

Senator MCCAIN. I hope you are correct.

I thank you, Mr. Chairman.

Senator WICKER. What could go wrong there, Secretary Stackley, to disappoint Senator McCain and the rest of this subcommittee?

Mr. STACKLEY. A couple of things. First, CVN-79 delivers in the 2023 timeframe. So, between now and 2023, new threats could emerge, one; or, two, we'll get through our operational testing associated with the CVN-78, and we might discover issues that we have not flagged earlier, in terms of those systems, that would drive change in. The key here is design stability and technical maturity. So, that's what we're going after on CVN-79 so that we do not have surprises in discovery as we build the ship.

Senator MCCAIN. You are looking at additional options to the large aircraft carrier, as we know it.

Mr. STACKLEY. We've initiated a study. I think you have discussed this with the CNO. That's—we're at the front end of that study. Yes, sir.

Senator MCCAIN. I think—Mr. Chairman, I think it's pretty obvious that, when there's no competition, there's no cost control. Certainly has been the case with the *Gerald R. Ford*.

Senator WICKER. Thank you, Senator McCain.

We're now going to continue, based on order of appearance—Senator Rounds, Senator Sessions, and Senator Shaheen.

Senator Rounds, thank you for—

Senator ROUNDS. Thank you, Mr. Chairman.

Senator WICKER.—deferring to the Chair.

Senator ROUNDS. Yes, sir.

I'd like to follow up—and, gentlemen, thank you for your service—I'd like to follow up just a little bit on what the Chairman has suggested.

Can you provide an update on the congressionally directed report on the Navy's next-generation land-attack developments efforts that were originally due in Congress on February 2? I believe you've been operating under an extension right now. But, just in terms of the update and the replacement for the Tomahawk, can you give us an update on that, please? I think there was one due here—what, February 2nd?

Mr. STACKLEY. Yes, sir. The—frankly, the delay to that report is because we're trying to get the requirements right. So, we're looking at a—two different things. We have two different missile programs are on the front end of development. One is land attack, and the other is maritime. So, before we launch down two separate development programs, what we're trying to determine is, Can we combine these, at least for certain technologies that would be common to both, as much as possible, into a single program, to reduce cost and reduce risk? So, we have delayed the submission of that report as we go through this front-end requirements analysis.

Senator ROUNDS. When do you expect that report to be available?

Mr. STACKLEY. Let me first offer, before the report is available, that we come over and give a briefing to the members, if desired. But, I will tell you right now, within 30 days. I put out the end of March as a date for that report, so you would have it in your hands to support your congressional action.

Senator ROUNDS. Okay, thank you.

For Admiral Mulloy, in your judgment, are your ship-launched munitions inventory sufficient to support current operations and

the defense strategic guidelines? Are there individual ship-launched munitions whose inventories, either present or projected, which are insufficient to meet the requirements? If so, what are they, and what is being done to address the shortfalls?

Admiral MULLOY. Sir, in terms of the number of munitions to meet the defense strategic guidance, I believe right now what we currently have planned, funded, and executed in the fleet meets that defense guidance. Otherwise—that's part of this whole—the budget submission. As I think you've heard the CNO testify—and I talked last year, was—unfortunately, munitions are one of the areas, when you get either sequestered or get a Budget Balance Act, we challenged areas of aircraft, modernization of ships and aircraft, weapons, and our base infrastructure. So, once again, on the chopping block people talked about earlier today, sir, was, If we don't get all the money, what happens? That's the real risk we have, going ahead.

As to individual weapon systems, we are currently ramping up for production of SM-6. So, the demand of the combatant commanders for the SM-6 weapon, because of its advanced capabilities and speed, we are filling those ships, as we can, when they go to sea. We're producing them—what we can. We look forward to more of those. But, we have large numbers of SM-2 weapons. So, we're in the middle of change-out on that. SM-3 for ballistic missile defense, those are produced by—the Missile Defense Agency. Once again, in many cases we have enough to supply the ships that deploy, but we don't fill every hole back at the United States. We are building those as we go.

Those are the two that immediately come to mind, sir.

Senator ROUNDS. Following along the same line—interesting how things work at—on my way in, we had a brief discussion with people coming in to visit with us from South Dakota. A gentlemen who I've known for years just made the comment how proud he was of his son, who was piloting an F/A-18. He just mentioned in passing, and it caught my attention as I walked in here, how—not only how proud he was of the fact that he—his son was doing this, but he commented on the fact that it had taken an extended period of time in which to complete the training because the F/A-18s that were available to them were down for extended periods of time because of the lack of parts to repair them. I got thinking about it a little bit, and I'm—you just happen to be in the line of fire, just after having that conversation.

Talk to me a little bit about the F/A-18. I know, when we talk about the B-1Bs out of Ellsworth Air Force Base, there's been several occasions in which literally they've been in the bone pile looking for their spare parts to maintain that fleet. Where are we at on the F/A-18? Do you have a shortage of parts? Is there a delay? What is the operation status for your F/A-18s that are in the fleet today?

Mr. STACKLEY. Yeah, I'll start and have—Admiral Mulloy will add.

I don't think it's as simple as parts. What we have is, the F-18 program, the earlier versions, A through Ds, they're designed and built as a 6,000-hour aircraft, and we're striving to get them out to 9,000 hours. In order to do that, they have to go through an as-

essment program and then certain life-extending modifications, and, frankly, repairs need to be done on the aircraft.

Those aircraft enter the depot, you open up the aircraft, and, in opening them up, you have discovery. You discover additional repairs that were not planned. So, what has happened, more than just—more than just parts, is a time lag associated with opening up and inspecting the aircraft, getting the technical fix and the parts, and then the labor back on the aircraft to restore it to the flight line.

So, that has created a backlog at the depots that we're trying to buy back, burn back down, so we can get the quantify of aircraft back out to support training as well as operations.

Senator ROUNDS. What's your normal expectation for the mission capability? What percent of your numbers would you expect to be mission-ready? What does the current number look like today?

Admiral MULLOY. The expectation for an—it depends upon where the squadron is. Sir, what I'd like to do is follow up and get you the full expectation.

Senator ROUNDS. That would be fine.

Admiral MULLOY. But, generally, a deployed squadron should have a mission capability rate full up of over 90 percent. But, what we do is, because of—the airplanes that are in depot or manning up, is a training squadron—or a squadron, when it's 9 months from deployment, may only have 6 or 7 aircraft, not 12. Their mission-capable rate may be as—it's partially mission capable, not fully mission capable. But, then you ramp up to have 12 airplanes fully mission capable when you deploy and maintain those forward.

But, we'll get you the specifics on that.

[The information referred to follows:]

The current Mission Capable (MC) rate for flight line F/A-18 A-D's is approximately 42 percent for non-deployed assets and 57 percent for deployed. The goal is to sustain a 64 percent non-deployed and 75 percent deployed Mission Capable rate. FA-18 E/F Mission Capable rates are approximately 44 percent non-deployed and 65 percent deployed. The goal is to sustain a 70 percent non-deployed and 80 percent deployed Mission Capable rate.

Senator ROUNDS. Would you? Thank you.

Admiral MULLOY. Yes, sir. But, one other comment I'd like to match what Mr. Stackley had was, he's talking about the A-through-D model, and those are largely half-Marine Corps, half-Navy airplanes, and taking them to that life and stretch that out. The compounding effect has been the ENFs, which are the newer ones, we have had to fly those even more than we expected. Then, that area, we have seen, is, now that you have more airplanes in, the expected production of supply parts match—let's say I had a fleet of 400 airplanes, but now I'm flying 500—I am using more parts. So, we have accelerated and, line by line, I have met with the Chief of Naval Air Force, the Chief of Navy Supply to look at individual items and where we are to make sure the F-18 E's and F's match what's going on.

This was not—I would say is—it's clearly in our budget material we laid out to the committee, to your staff, was—the Navy would not be the—what we call “2-5-2-0” until 2018 because of the Airman Apprenticeship Training Program (ATD) aircraft that we were now not being able to fly as much. So, it's very clear we saw it

there. The expectation was we were not expecting the ATDs to be in such, I would say, not poor condition, but the condition, when opened up, was not to be expected as bad as it was, given what we thought would extend those aircraft.

But, once again, it was never extended to—planned to be extended that long. So, this is a finding method for us, and we're working as hard as we can to bring them back up.

We are very proud of every one of our F-18 pilots.

Senator ROUNDS. Thank you.

Thank you, Mr. Chairman.

Senator WICKER. Senator Sessions, followed by Senator Shaheen.

Senator SESSIONS. Thank you.

Thank all of you, Admiral Mulloy and Hilarides, and Secretary Stackley. I think you're managing complex programs well.

Secretary Stackley, I believe you're a real national asset to understand the details of this, and you're tough, and I believe you're handling the difficult position you have with integrity and ability, and we're glad you're there, and glad both of our admirals are, too.

We have a goal of 306 ships. The LCS, Littoral Combat Ship, is a substantial part of that. Can you tell us what role the LCS plays in your vision for the future, briefly, of the Navy ship fleet?

Mr. STACKLEY. Well, sir, I'll start, and ask Admiral Mulloy to join me, here.

First, the force structure assessment has 52 LCSs, or small surface combatants, inside of the 306-ship number. Its role—its multiple roles—first, not to lose sight of it, is presence. With the 52 ships, the deployment strategy is that—is what's referred to as 3–2–1. You'll—for each ship, for—for two ships—one of two ships will be deployed out of the 52. You'll have three rotating crews to support that rotation rate. So, what that means is that 50 percent of your LCSs will be deployed at any one time. That's a significant presence booster. If you compare that to other surface combatants or other ship types, a deployment rate of one in three or one in four is typical. In the case of LCS, it's one in two that we're going after. So, big operational availability, in terms of forward presence.

Then, in terms of missions, LCS was designed as a modular mission ship. In other words, we have the ability to rotate our mission packages, depending on what the demand is from the combatant commander. So, the three initial mission packages set for LCS are the mine countermeasures, which is a significant area of concern for our Navy, in terms of warfighting gaps. So, we look at LCS to replace the MCMs. More than just replace them, to significantly increase our mine countermeasures capabilities. Then the other two mission areas, one is surface warfare, or anti-surface warfare. First, to deal with swarming boat threats that we are limited in our ability to respond to. Then the third mission package is anti-submarine warfare. Particularly when it comes to LCS, we have a mission package for anti-submarine warfare that is very unique. It combines what's referred to as a variable depth sonar and a multi-function towed array. So, we will have an active—continuous active variable depth sonar that gets below the acoustic layer, and a passive towed array to pick up the signal. In demonstrations with an engineering development model, we've demonstrated the ability to

pick up submarines multiple Convergence Zones (CZs) away.
So—

Senator SESSIONS. I just have a—

Mr. STACKLEY. Yes, sir.

Senator SESSIONS. Do you want to finish up?

Mr. STACKLEY. No, I was going to say, those three mission areas for the LCS, that presence that's provided by the 50-percent deployment rate, and then, when we talk about the future frigate, it's modifying that LCS to give it a multimission capability, increase its self-defense capability for greater independent operations, and, basically, operating across the range of military.

Senator SESSIONS. Well, I've been on this committee for 18 years, and I remember when it came forward, the vision for it. I would ask—and I thought it was a good idea then, and I still do.

Tell me about—just—I don't have a lot of time, but, briefly, how are you on cost containment? There's been some criticism about that. But, as I understand it, we're in a much better situation today than a lot of people understand. Would you give us a rundown on that?

Mr. STACKLEY. Yes, sir. The history of cost on the program is greatly checkered by the first two ships at each of the shipyards. Costs exploded on the first two ships, and then we went through a period of instability, design changes associated with—included late in those two ships' design that really impacted our start. The great step forward was achieved when we went down the block-buy path, when were able to bring competitive pressure, go out for a 10-ship buy across a 5-year period, which ultimately became 6, allowed industry to go out—reach out to its vendors to secure good pricing, allowed them to make investments in their shipyards. So, as a result of that block-buy approach, what we've seen is very strong learning-curve performance, such that the last ships of the block buy are at about a \$350 million pricetag, which is about half of what the first ships were.

Senator SESSIONS. About half of what the first ships were.

Mr. STACKLEY. Yes, sir.

Senator SESSIONS. So, you're getting the cruising speed. In other words, the shipyards are producing these ships rapidly. The bugs are getting out of the system. Now you're at the time where you make money, I guess, where you actually are able to produce a ship that's certain to come in at a good cost over a period of time.

Mr. STACKLEY. Yes, sir. We're seeing stable performance. The investments that the shipyards have made have—are paying them back, in terms of their performance. They've trained up a workforce that they're holding onto through this production run. This is—we need to replicate this, frankly, on more programs.

Senator SESSIONS. Well, I think you said that before. It's—what's been achieved is almost historic.

Well, I know you're aware of the—there's some—in the mission packages, there's some—the ship itself—both the ships don't have any fundamental flaws, but are operating effectively. Is that correct?

Mr. STACKLEY. We've—frankly, when we conducted operational testing—developmental and operational testing on the lead ships, we identified flaws, and we've incorporated those back into the de-

signs to the best—best we can to ensure that, future ships, those are being captured in the design right upfront.

Senator SESSIONS. But, with regard to some of these innovative, high-tech computer systems and mine countermeasures, you are—you're not going to certify those until you're satisfied, as—from my conversation with you, you are not going to certify until you're certain they are meeting the standards, number one. Number two, I'll ask you, Is there any doubt in your mind what you're asking will be achievable? It's not something that is a pie in the sky, but these are all improvements that, with time and effort, can be achieved?

Mr. STACKLEY. I think we're dealing with engineering issues, not invention. So, the answer to your question is yes. In terms of our certification—our certification standards are well laid out, well understood. We're holding tight to those certification standards. We'll complete the operational testing. We've gone down the mission package path in an incremental fashion to ensure that we don't overreach with a big-bang approach, but, as technology is mature, we can go ahead and incorporate it in respect to ships.

Senator SESSIONS. I think that's good management. Thank you, Mr.—Secretary Stackley.

Senator WICKER. Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman.

Thank you all for being here.

I had the opportunity last week to go out on a—to embark on the USS *New Hampshire*. It's convenient, that was the *New Hampshire*. I was very impressed by the teamwork on the ship, by the capacity of that *Virginia*-class sub, and what our program can do. One of the things I heard about while I was there was the fact that last year the crew and the USS *New Hampshire* were out submerged for 110 days on their mission. During that period, they came up one time to load food for 6 hours. It really struck home with me the impact that—when we talk about shipbuilding, we talk about it in terms of the ships, but we don't often talk about it in terms of the impact that this program has on the men and women who serve on those ships, and what a shortfall does to the deployment cycles that people have to serve. I wonder, Secretary Stackley or Admirals, if one of you would like to speak to the challenge that that presents when we have a reduced number of ships, particularly submarines.

Admiral MULLOY. Yes, ma'am. As we indicated was, we are meeting the demand of 100 ships from a 300—from a 275 ship Navy right now. Ten years ago, I would have told you we had 100 ships underway from a 400-ship Navy. So, what that means is, every asset is critical to us, and that means that you have to man it, you have to maintain it, you have to train them up to be successful, and then you have to supply them when they're forward deployed. In many cases, they may have to go back out again if the world situation changes. A number of our SSNs from the Groton area had to rego back at sea again, so I believe the *New Hampshire* went back from deployment and went back out again, because she was ready to go. That ripples into a little bit on the family world. They had some plans; you know, birthdays, anniversaries were missed. We've all been there, back in the Cold War. We're just entering a

phase again where the world is shifting, but it's not one defined adversary. So, as a result, we ask a lot of our people.

So, it's important—and that's one thing out there, where the CNO—he and I were just talking, on Monday—is that, when he travels around, it's not necessarily the length of deployments, it's the unknown, when they come back to, "Am I going to go again? But—"I'm willing to go again if America needs me." But, what's going to happen about—"Am I—is Congress not going to supply the money? Is my—is the barracks not going to get refurbished?" Because they know, in 2013–2014, we deferred that. You know, we've maintained all of our ship maintenance, we just had to slow some schedules, because the shipyards were—shipyard workers weren't furloughed, but other—every Federal agency was furloughed, and had a dramatic impact on the workload. If you're in the shipyards, your boat didn't get done on time. If you're the petty officer on another ship, you stayed out longer.

So, they're all woven together, and they're all observing—all 323,000 people in the Navy are observing what's going on, and they want all of us to push on you, they want all of you to supply back out to them so they can be that 100-day underway. I know exactly what it's about with all my deployments operating from Groton and San Diego and Guam, exactly what that's like. You count on your family to be well and that America cares and loves about you.

Senator SHAHEEN. Well, I think we heard a lot about this concern during Iraq and Afghanistan, in terms of the deployment of our service men and women in the Army, the Marines. But, I think there's been less of a focus on it with respect to the Navy. So, I do think that's important to have as part of this discussion.

The other thing I was pleased to hear when I was on the *New Hampshire* was a number of very positive comments about the Portsmouth Naval Shipyard, which is something that Senator King, Senator Ayotte, and I are all very concerned about. I wonder if, Secretary Stackley, you could talk about the importance of continuing to modernize our shipyard and keeping that 6-percent capital investment maintained.

Mr. STACKLEY. Yes, ma'am. I'll start, and I think I'll let Admiral Hilarides join in, as well.

The—

Senator SHAHEEN. I have about a minute and 50 seconds left.

Mr. STACKLEY. Yes, ma'am. This—we have revised our standards, in terms of our recap rate for our public shipyards, in recognition of a couple of things. One, it was stretched out too long. Two, the facilities, as a result of this long stretchout over a long period of time, they're in need in particular areas of upgrades. Three, we can't rely on just the Overseas Contingency Operations Fund (OCO) and other avenues to basically augment our budget to take care of it. We have to make that a priority. So, in fact, the report that we submitted to Congress 2 years ago, we went back through, as a result of that review, and revamped the way that we are investing in our public yards. Both Admiral Mulloy, as our budget officer, and Admiral Hilarides, as the officer who's in charge of the shipyards, had a heavy hand in both of those. I'm—

Admiral HILARIDES. Yeah, I would just add that, you know, we were below that 6-percent benchmark in the submission in 2015.

I'm happy to report we'll achieve about 7 and a half in the public shipyards. Then our budget submission for 2016 has 7.2. We think we'll be well over 8. Captain Green's done a great job of being first to the—first at the head of the line for this. So, I—Portsmouth has done very well in that work.

Senator SHAHEEN. Thank you. I appreciate that. I assume, like everything else in the defense budget, that would be affected if sequester kicks back in.

Let me also follow—Secretary Stackley, you were very eloquent in response to Senator King's questions about the impact on the industrial base of what's happening and what would happen with sequestration. But, you know, Senator King raised Bath Iron Works. You talked about Huntington Ingalls. One of the things that I've heard from small businesses in New Hampshire, where we have a defense industrial base, is that, while some of the larger companies can weather these kinds of cuts, for small businesses, they really cannot do that. If the subcontractors are no longer in—able to stay in business, aren't we going to have the kind of issue that Senator McCain talked about when he said competition means—well, lack of competition means that costs go up, means that it's harder to procure whatever we're looking for, whether it's the ship or a system on the ship?

Mr. STACKLEY. Yes, ma'am. The supplier base—it's been harder for us to get at the supplier base, traditionally. But, we're making a concerted effort today, because we recognize that, in continuing resolutions and sequestration, the first one that's impacted is the guy at the end of the supply chain, because he's the first one whose invoice is waiting for funding, and he's the one who is least able to weather the storm.

So, we've been doing a couple of things. First, we were working with the big defense contractors. In all of our discussions with them, asking them, in terms of, "How are you all viewing your supply chain to ensure that it remains healthy?" That's a good dialogue. But, we can't just rely upon them.

So, separately, we've been going out, and we're taking a look at our supply chain past the defense contractors to, first, map where it is; second, to identify what are the critical elements of that supply chain, where there's either a single or a low number of suppliers that, if they went out of business, we would either lose competition or we would lose critical supply for one of our major weapons systems.

So, it's a couple-pronged approach. Then, third, we're having roundtables around the country, sitting down with small businesses to understand their problem from their perspective so we can make that a part of—make that our problem, frankly, and how we do business with small business.

I'll give you a very simple example. We have a thing called "CAPEX incentive"—capital expenditure incentive—that we provide to our major contractors to allow them to—to incentivize them to invest in their facilities. We don't do that with the supply chain. So, now what we're exploring is, Does this make sense to provide this type of CAPEX that either passes through the front contractor to get to their supply chain to give them the same benefit that we

provide the big defense contractor who, frankly, is in a better position to deal with the financial uncertainty than their suppliers?

Senator SHAHEEN. Thank you very much.

Certainly, if we can be helpful, I'm sure that all of us on this committee, as you're talking to small businesses in our region, would be happy to participate and be helpful.

Mr. STACKLEY. We're going to come back to you all with some asks associated with supply-chain material commonality for some of our major programs as we look ahead to some of the fiscal challenges that we've got, in terms of controlling cost and dealing with budget uncertainty. We have some very specific asks that we're going to need from you.

Senator SHAHEEN. Great.

Thank you, Mr. Chairman.

Senator WICKER. Senator Hirono.

Senator HIRONO. Thank you very much, Mr. Chairman.

I think maintaining our shipbuilding capacity in this country is really critical, as you mentioned in your testimony, that other countries are forging ahead. I'm really glad, Mr. Secretary, that we're looking at, not just the shipbuilders themselves, but also the supply chain. I think that they are a very important part of maintaining our shipbuilding capacity. So, I commend you for those efforts.

For Admiral Mulloy: For a number of years now, the Navy's long-term goal for fleet size has been 306 ships. Are you planning to change the goal for the size of the fleet?

Admiral MULLOY. Well, ma'am, the goal is actually set when—it's called a Force Structure Assessment, and it's actually 9 separate items we look at and go out to the combatant commanders and then also all the military plans, and we assess how many aircraft carriers, how many large surface combatants, how many attack submarines, how many ballistic missile submarines. That adds up to 306. Now the latest version about to come to the Hill will be 308. We've added another afloat staging base and recognize the LPD-28 to provide 34 to allow us to make sure we get 30—as we talked earlier, about 30 amphibs.

So, 308 is a force-structure assessment, of which is 9 different types of ships—or categories—of a—what I'd call an attainment. Now, that means you could substitute different ones. You could have—a large surface combatant could go do a mission for a small surface combatant if you don't have enough. That's where we're trying to build the LCS right now.

So, we're attempting to build a fleet size of that. Now, as we have just—we're now going to commence again, for another year from now, another assessment out with the combatant commanders of a new global end state revising the world again. So, the number might change by—anticipate it'll be probably somewhere around the 308 number again. But, once again, that is an aspirational goal of all those types that you have to build, depending upon sustained, consistent funding, that you could build, because all those items and those ship types, as we discussed earlier, compete. Submarines are going down, amphibs are going up at any one time, what the companies are building. But, I need, as a Chief Financial Officer (CFO), is to give the CNO and the Secretary of the Navy and his

assistants here some kind of plan of a requirement and that we try to build to that.

Senator HIRONO. How are you incorporating the shift to the Asia-Pacific in reviewing the requirements for the total number of ships?

Admiral MULLOY. Well, ma'am, that's—lay down our—called a strategic laydown plan. So, we have just moved a fourth submarine to Guam. The USS *Topeka* will be arriving in Guam shortly. We're putting other ships as we move around the western Pacific. We're actually bringing ships as they're commissioned from the east coast, where they're built—our submarines are built there, they come to the west coast. So, we are constantly looking at moving. The *Theodore Roosevelt* just left on a round-the-world cruise. She will go from being an Atlantic aircraft carrier, proceed through the Mediterranean, operate in the Middle East, and eventually end up in San Diego at the end of her 8-month deployment, and now will become a west coast ship. So, we're restoring a balance to provide more forces to the west coast.

Senator HIRONO. Well, the important concern that I want to make sure is reflected in your assessments is that we continue our commitment to the rebalance to the Pacific.

For Secretary Stackley, the Navy—responding to direction from former Secretary Hagel, analyzed numerous upgrades to the current LCS designs. I know you mentioned that this program has—undergoing a number of challenges, including large cost overruns in the beginning, and design changes that led to instability. So, you know, that—Secretary Hagel identified some upgrades to the ship that the Navy hopes to include in the 33rd ship and later. We need to understand the reasons behind this change.

So, either for Secretary Stackley or Admiral Mulloy—perhaps Admiral Mulloy—do you have an approved requirement for the modified LCS vessel? Joint Requirements Oversight Council (JROC) approved?

Mr. STACKLEY. Let me start. JROC approved for the modified vessel, no, ma'am. What we are doing right now is, we're going through what's referred to as—inside of the service, our equivalent of the—you know, JROC inside of the service, our requirements definition process. That's ongoing today. We've got a target to get down the JROC in the June timeframe, recognizing that this is a 2019 ship that we're proposing to modify. What we want to do, though, is get moving on the design activities to support that timeline.

The Secretary of Defense, he gave us the tasking. In discussions with him, a lot of the tasking was not dealing with a new threat, taking a look at a 306-ship Navy, 52 LCSs, about 1 in 6 having what's referred to as a "focused mission capability." In other words, it could be doing anti-submarine warfare (ASW), or it could be doing anti-surface, or it could be doing mine countermeasures, but it's not doing all of them at once time. His concern that the concept of employment or operations for the LCS either involved phase zero—early phase activities or were in the context of a battle group providing a degree of protection for the LCS.

He believed that one in six of our fleet was too large of a number with that concept of employment. So, that's how he arrived at—cap that at 32. He wants to see something that had what he referred

to as greater lethality and survivability to enable more independent operations, more operations in support of battle groups, in support of defending the high-value units, and give it the ability to provide presence without—outside of the bounds of—

Senator HIRONO. So, Mr. Secretary, I am running out of time. So, just to get a better understanding of what's going on with the LCS program, though, I realize that Secretary Hagel wanted to focus on survivability. Is the survivability requirements for the 33rd ship forward basically very much different from that that was in the basic LCS?

Mr. STACKLEY. We did not change the requirements associated with survivability for the modified LCS.

Senator HIRONO. So, Mr. Chairman—oh, where did he go? I guess I can carry on, then.

[Laughter.]

Senator HIRONO. My understanding is that, before you really get into the specifics of the design of a ship, that you should get the approved requirements, that, when you don't have the JROC approval or certification or whatever the technical term is, that, you know, you should put the—you shouldn't put the cart before the horse. So, that is why I asked the question as to whether or not there is an approved requirement for the modified LCS vessel before going forward with any further design aspects.

Mr. STACKLEY. We do not have a—as I described, we do not have a JROC-approved requirements document in advance of—today. However, we will have that in advance of doing the design for the modification of the LCS.

Senator HIRONO. So, when would that timeframe be—

Mr. STACKLEY. We're targeting June—

Senator HIRONO.—for getting JROC?

Mr. STACKLEY. We're targeting June timeframe for the JROC. Literally today inside of the Department of the Navy, we're working the requirements document to support that timeframe.

Senator HIRONO. Thank you.

My time is up, so I might want to ask the chairman to allow me to do a second round.

Senator WICKER. Sure. We may take an extra round.

So, let me start with my first round.

Secretary Stackley, I think everyone here is committed to replacing sequestration, if we can. I think everyone has made that statement. Not everyone in this town feels that way. You hear—well, let me harken back to something Admiral Mullen said, several years back. He said the national debt's the number-one security threat of the United States of America. I'm sure Admiral Mullen would have the same advice to us on sequestration. But, still, he made that statement. There are people who would urge to us, you know, "The sky didn't fall the last time we endured sequestration. Obviously, it was hard, but we got through it. Sequestration has been a very inartful, but effective, way of pounding down on expenditures, domestic and defense." Help us to help you know how to cut through the rhetoric.

You know, in my opening statement, I mentioned there are—some folks say—they say we need 306 ships. It's the Navy's stated force structure. National Defense Panel says 323 to 346. The com-

batant commanders say 450. A pretty big gap there from people that are supposed to know what they're talking about. I thought I heard you say that we're going to protect shipbuilding, no matter what. They'll be the top priority. So, these people at the end of the chain, there, in the supplier business, maybe they don't have so much to worry about. It's the morale that Vice Admiral Mulloy talked about, civilian and military.

Just help us to know how serious this is. Can't we just—can't we do this one more year—let it go back in for a fiscal year, muddle through, and the sky wouldn't fall?

Mr. STACKLEY. Yes, sir, let me try to walk through this.

There are three aspects that we have to balance. There's readiness, there's capacity, and there's capability. The discussion about keeping shipbuilding as a priority, as the budget—in the face of budget uncertainty, that has a lot to do with capacity long term. That's so that we do not mortgage our future in dealing with today's fiscal crisis.

However, what we place—the risk goes somewhere. So, where does the risk go? Well, it's either going to go to readiness or it's going to go to capability. By readiness, we talked about extended deployment lengths. If you look at the size of the Navy over the last 25 years, in the early 1990s we had a 450-ship Navy, and we had about 100 ships deployed. Today, we have a 275-ship Navy, we have about 100 ships deployed. That's wear and tear on the hardware, it's wear and tear on the sailors, it creates backlog in the depots, and it creates questions regarding operational availability, going forward. So, readiness is at risk.

Capability, that's not so much the ship count, but that's the weapon systems that we place on those ships. So, when we talk about the *Ohio* replacement and the investments that we have to make, in terms of its survivability, its capability inside of shipbuilding, that is a number-one priority. So, we're going to protect that investment to ensure that *Ohio* replacement has the capability it needs. But, then when you walk away from the *Ohio* replacement and look at the rest of our shipbuilding programs and the investments that we need to make to ensure that they are mission relevant—they're not just present, but they have the capability they need to deal with an increasing threat—that's at risk. That's on the shipbuilding side.

We also talked earlier about the F/A-18 and what's going on in the depots there. So, parallel universe with shipbuilding is the aviation component, in terms of backlog in the depots and then the investment we need to be making in fifth-generation capability for our strike fighters so that, in fact, it can go head-to-head in high-end conflict, which is the thing that concerns us most.

So, we have to keep all three in balance. What does sequestration do? It's pulling the rug out from one or all three. So, if we protect shipbuilding in the face of sequestration, it's going to come at the expense of readiness today or the capability that we need to continue to invest in so that we don't just have the ships on the front line, we have the ships with the weapon systems they—that they need—not to maintain parity, but to maintain superiority over the threat.

Admiral HILARIDES. Yeah, I'd just like to add one example of the enduring effects. It's kind of like shipbuilding, but in a microcosm, and I think it'll relate to several members of this committee.

Our public shipyards during the time of the sequestration and the hiring freezes that were associated with it, 1,400 people left the workforce at a time when we were supposed to have been increasing it, and left us a divot almost 2,000 people behind, which has directly resulted in us not delivering—

Senator WICKER. When was that?

Admiral HILARIDES. At all four of the shipyards, so Norfolk, Puget, Portsmouth, and Pearl Harbor.

Senator WICKER. What timeframe, sir?

Admiral HILARIDES. Started in early 2013, and we began hiring again at the beginning of 2014. We crossed over to a positive territory almost a year and a half after the beginning of the event. The SSNs in the public yards in Norfolk and Puget are a year late on delivery out of their depot today because of the effects of those hiring freezes that occurred back in 2013. So, these divots, although it appears we stood right back up from it, we are still recovering very much across all of the enterprise.

Admiral MULLOY. What the CNO just testified is, in terms of the surge capability. We talk about—we've been able to maintain—we call "one-plus-one"—other words, one aircraft carrier in the Pacific, one in the Middle East, and we flow them around. We're also supposed to be able to surge—the ability to surge more carriers and amphibious groups, that we have one-and-one also there, to the ability to having what we call "two-plus-three"—two of them out and three of each to be ready to flow for pressing needs. Right now, we're at a "two-plus-one," and we do not recover that in carriers until 2018. Then amphibs would be 2020. That's due to a sequestration and a BBA. If it happens again for 1 more year, I don't know how far that will slide, but that's a 5-year rolling impact of one anomalous event.

So, when you say is, Can you have another anomalous event?—that's where he said was, "No, we can't." Are you talking about a 2024 ability? How long will the world change in the next—you know, the next 8 or 9 years to be more negative for us to have us in the situation of a degrading posture vice an improving posture?

Senator WICKER. Before we turn to Senator King for a second round, does anybody want to follow up on this line of questioning with regard—okay. Well, all right. Senator King and then Senator Shaheen, on the topic of sequestration, and then we'll give Senator King another opportunity to take another round.

Senator KING. I was going to say, we shouldn't beat a dead horse, but this is a dead horse that deserves beating, in my view. As I understand it—and again—

Senator WICKER. Don't know how dead it is.

Senator KING. That's a good point.

Again, going back to your excellent report on the industrial base, as I understand it from that report and from my memory, we were able to skate through the first year of sequestration because of unexpended balances and other sort of historic ability of built-up funds, and then we had the partial relief over the last 2 years. So, this year would be full force, and it would, in fact, be worse than

what was gone through in the prior several years, because of those different circumstances. Is that—am I understanding correct?

Mr. STACKLEY. Yes, sir. We pulled—every bit of margin that was in the system, we pulled out of the system in order to offset the impact of sequestration in 2013. So, we drew a lot of our programs and accounts down, in terms of margin, to weather through sequestration.

Senator KING. But, you can't do that now.

Mr. STACKLEY. It's—we've exhausted it, yes, sir.

Senator KING. Well, I think that's the answer, Mr. Chairman, to this argument, "Well, we made it through, and therefore—the sky didn't fall." It was because we had slack in the system that allowed us to do that. Then we had the relief in 2014 and 2015. But, now we're facing the full brunt of it.

I think we need to remind ourselves, this was a—sequestration was designed to be stupid. It was explicitly designed to be so unacceptable that Congress would find a solution to—find ways to solve this problem in other ways, and it was supposed to be so dumb that it would never happen. In fact, I remember being asked, in my campaign in 2012, "Will sequestration take effect?" I said, "No, of course not. Congress would never let that happen." Well, here we are.

So, it's not that those of us who want to relieve from sequestration are saying we just should ignore it, but we should find other ways to fill that \$90-billion gap in the—this fiscal year and the 6 years that are still remaining, through various other areas of the budget.

So—but, I think it's important to get across to our colleagues that, just because we made it through in 2013, 2014, and 2015 doesn't mean that the next year will be a piece of cake, because the circumstances are different.

Senator SHAHEEN. Well, I just wanted to follow up on the other consequence of what you were talking about, Vice Admiral Hilarides, because what I have heard from people at the Portsmouth shipyard is that, not only did we lose people as the result of sequestration, but we're having trouble hiring people. We have—as you know, we have a lot of very trained and skilled people who are reaching retirement age, and trying to attract the skilled workforce we need, particularly in the science, technology, engineering, and mathematics (STEM) subjects, to replace them is difficult enough. But, if you add to that the uncertainty of, "Well, we're not sure if we're going to have a job long term because these cuts may be coming back in, and we don't know what that means to our future," then that creates another element that makes it even harder.

Admiral HILARIDES. Yes, ma'am. The things that happened in 2013 came at a—probably the most opportune time, is that the economy was not as robust as it is today, and, as a result, we did not see a dramatic spike in retirements, although we did see a slight increase. Hiring, we still get plenty of applicants for the great jobs up at the shipyards. But, I think if we do this—and looking at the economy is now, with the growth in industrial trades across oil and gas and other places in the economy, we probably won't be in that same place. I worry a lot about just what you said, that hiring and retirements will both go—fall against us, and our

recovery would be much longer than it has been in the last 2 years. Yes, ma'am.

Senator WICKER. Senator King, do you have further questions.

Senator Hirono.

Senator HIROKO. Thank you.

You've talked about the importance of the *Ohio*-class replacement program. Fiscal Year 2015 National Defense Authorization Act established a National Sea-Based Deterrence Fund. I wanted to ask you, Secretary Stackley, What are the Navy's plans for using this fund to implement the *Ohio*-class replacement program? Because you need to have some processes in place in order to make sure that you're out of a—you know, you're ready to go and there's money in this fund.

Mr. STACKLEY. Yes, ma'am. We need to work with you all, and the appropriators as well, in terms of how to put this fund to work. Right now, it's a framework without funding in it. What was authorized was to be able to use other funds from shipbuilding to go into the sea-based strategic deterrent fund.

Well, today we don't have other funds from shipbuilding to move into that fund, and particularly not in the—to the magnitude that we really need to ramp up to, to support the *Ohio* replacement.

So, we're looking at—we actually start procurement of the *Ohio* replacement. The first procurement dollars are in 2017. That's the advanced—I'm sorry, 2017 is the advanced planning; 2019, in terms of material. So, what we need to do is come back to the defense committees and discuss what the—what are reasonable options, alternatives, in terms of making this fund more than a framework, but actually helping to solve the issue that's before us all, in terms of the impact of the *Ohio* replacement on our shipbuilding budget.

Senator HIROKO. Yes, that's my concern, because I think what you—you can't start too soon to have more than just a framework for this fund. I think it takes time for us to establish the processes and how exactly you're going to implement this fund.

For you again, Mr. Secretary, the Navy announced the intention to complete a package of ship contracts, including the TAO(X) oiler, the LHA(R)—I just love all these acronyms—amphibious assault ship, and the LX(R) dock landing ship replacement all in one package. So, Navy also said that it would restrict competition for that package of contract to only two shipyards. What is the Navy's strategy for rewarding these contracts? Why is it in the taxpayers' best interest to restrict competition for these ships?

Mr. STACKLEY. Thanks for the question, ma'am. We're trying to balance a couple of things.

First, our requirements. So, we have a requirement to replace our fleet oilers, and that's the—that first of class ship for the TAO(X)—that's the replacement for our fleet oilers—is in the 2016 budget year. We also have a requirement for a new big-deck amphib, the LHA-8, which is a 2017 ship with advanced procurement in 2016. We've talked about the LX(R), which is the replacement amphibious ship for our LSD-41 class, which we have in the budget in 2020, with advanced procurement the year prior.

So, when we look ahead at those three major programs across our industrial base, a couple of things become immediately appar-

ent. First, we talked about the fragility of the industrial base. What we want to do is add stability to the industrial base. Second, we've talked about affordability of our shipbuilding program, so what we want to do is figure out how to drive affordability into those programs, to the extent possible. Then, third is competition, which couples the industrial base and the element of affordability.

The strategy that we have put forward does a couple of things. First, it sends—it sends a signal to our industrial base that we're going to limit competition to the two shipbuilders that we believe are absolutely essential to our industrial base.

Senator HIRONO. By the way, what are the two shipbuilders?

Mr. STACKLEY. Ingalls Shipbuilding and—

Senator HIRONO. In Mississippi.

Mr. STACKLEY. In Mississippi. General Dynamics NASSCO, in San Diego.

Today, Ingalls builds four different ship classes. Today, NASSCO builds one Navy ship class and commercial work. We view them both critical to our industrial base. If we were to go down a path of open competition and soliciting these one at a time, there is tremendous uncertainty in terms of what the outcome would be, in terms of our industrial base and our—the affordability of those programs.

So, what we've elected to do is, one, limit the competition to those two builders; two, we're soliciting each of these programs separately but together, and requiring bids on each from both shipbuilders so that we can get competition inside of each, as opposed to either allocating or awarding one at a time, which puts one of the shipbuilders at risk.

So, in order to preserve the industrial base, leverage competition, bring affordability and stability to that industrial base, we've elected to limit the competition, go out with a single solicitation that contains both the LHA-8 and the TAO(X), size them what we believe to be about the same, in terms of man hours of work, and also about the same, in terms of horizon of time, so that industry has some assurity that, okay, "We understand how much work is coming our way, we can build that into our business base. We'll sharpen our pencils, in terms of competition."

Senator HIRONO. So—I thank you for that explanation. You mentioned, though, there are eight shipbuilding facilities, and four of them are only one contract away from going under. So, are you also looking at what's going on with those other shipyards, shipbuilding—

Mr. STACKLEY. Yes, ma'am. So—

Senator HIRONO.—facilities?

Mr. STACKLEY.—the other shipyards—first, on the nuclear side, electric boat, in Newport News, are not in what I would call a fragile position.

Senator HIRONO. The four that are one contract away.

Mr. STACKLEY. They're in very strong position. In fact, they have increasing workload coming their way.

NASSCO is a contract away. They are in peril. So, that's why this is an important aspect of NASSCO's viability.

Ingalls—if Ingalls does not get one of those two major programs, then they are at risk.

Now, separately—I haven't discussed Bath Iron Works, because Bath Iron Works does not build these ship types, so they're not a part of this discussion. But, separately, we did talk about the multiyear for destroyers. Continuing down that multiyear path, it's important to both BIW and its competitor, Ingalls, on that program.

Then we have the two builders for the Littoral Combat Ship (LCS), Austal, on the Gulf Coast, Marinette Marine, up on the Great Lakes. They're separately addressed, in terms of the future shipbuilding strategy for LCS followed by a future frigate.

Senator HIRONO. Thank you.

Thank you, Mr. Chairman.

Senator WICKER. Well, Senator McCain expressed concern about competition. I think that was with—in regard to aircraft carriers.

Mr. STACKLEY. Yes, sir.

Senator WICKER. Would you care to respond to that?

Mr. STACKLEY. He made a generic comment that we need competition to help control costs on our programs. We are absolutely in agreement there. With specific regards to the aircraft carrier, we have been asked, and we are following suit, to conduct a study to look at alternatives to the *Nimitz*- and *Ford*-class size and type of aircraft carrier, to see if it makes sense. We've done this in the past. We're not going to simply break out prior studies, dust them off, and resubmit it. We're taking a hard look to see, Is there a sweet spot, something different, other than today's 100,000-ton carrier, that would make sense to provide the power projection that we need, that we get today from our aircraft carriers, but, at the same time, put us in a more affordable position for providing that capability?

Senator WICKER. Okay. But, right now he's—he's made a correct factual statement with regard to the lack of competition.

Mr. STACKLEY. Yes, sir. There's—if you—there is no other shipyard in the world that has the ability to construct a *Ford* or a *Nimitz* nuclear aircraft carrier, other than what we have Newport News, and the capital investment to do that is prohibitive to set up a second source. So, obviously, we are content, not with the lack of competition, but we are content with knowing that we're only going to have one builder for our aircraft carriers.

Senator WICKER. Let me also follow up on the question about the EMALS. Now, EMALS is a catapult and an arresting mechanism based on electromagnets. Senator McCain was getting a lot of questions in his allotted time. So, let me give you time to explain about that.

You've been in this business a long time. But, we adopted EMALS, decided to move to that, well over a decade ago. Is that correct, Secretary Stackley?

Mr. STACKLEY. Yes, sir. I think the decision was made in 2004.

Senator WICKER. Okay. Well, is it a good point, looking back, to say we were doing fine with the steam-powered catapults and arresting mechanisms, so why did we go to this?

Mr. STACKLEY. Let me start with the requirement. The—this wasn't a technology push. Going to EMALS enabled a couple of things. One, in terms of requirements, increased sortie generation

rate, which is basically the mission of the aircraft carrier—launch and recover aircraft. Two, reliability. The number-one—

Senator WICKER. So, EMALS is supposed to be able to give us a better rate of—

Mr. STACKLEY. Yes, sir.

Senator WICKER.—of launching.

Mr. STACKLEY. Yes, sir.

Senator WICKER. Is that, in fact, going to be the case?

Mr. STACKLEY. That will be the case. Let me just say that, today, analytically and what we've done in terms of land-based testing support that. Now what we've got to do is get out and demonstrate that, in terms of operational testing, and, more importantly, in terms of joint fleet exercises as the ship readies for deployment.

Senator WICKER. When that happens, to what extent will the rate be—

Mr. STACKLEY. We have—

Senator WICKER.—better?

Mr. STACKLEY. We have—oh, not better.

Senator WICKER. Faster?

Mr. STACKLEY. Yes, sir. I would tell you it's in the 25 percent—

Admiral MULLOY. Our sortie generation rate is the combination about—as he said, 20 to 25 percent better. It's the electromagnetic launching, it's the ability load fuels and weapons, and it's also the landing capacity. So, it's really all taken together as—the ship is designed to be able to land airplanes quickly and maneuver them in front of the island, which is further back and taller. There are fuel risers and there are ammo elevators right there. They can quickly get back on the EMALS catapult. So, at the total synergy, it's about a 25 percent increase of throughput capacity on the carrier.

An important driver on this was also the manpower and piping required, is that, when you design the ship for long term, steam catapults, you have to tap off hot water from the reactor plant, bring it up, you have steam piping, a significant amount of maintenance. You're saving about—I think it's between 4 and 600 people on that ship, or—and so, you're generating billions of savings because I don't have to bring as many petty officers in to work on steam piping for the entire 50-year ship of the life. I just have electromagnets operating all the time. So, I reduce the number of people onboard, and I increase the throughput rate. So, when you look at a 50-year life of a ship, it's a significant investment.

The last one is, I can adjust the weight throw, is—as I look at heavier airplanes and unmanned air vehicles, a steam catapult hits it with a certain thud. With the EMALS, I can adjust the weight down for a light, unmanned air vehicle, or I can go for a fully loaded F-35 advanced airplane, with weight and space growth for the future, all on one thing, with greater flexibility.

Senator WICKER. When will this become a reality, if everything goes well out in the water?

Admiral MULLOY. It'll be testing in 2016. So, we expect to be, at least on the airplane side, in 2017 through 2019, work up to deploy; the unmanned air vehicles will depend upon some other follow-on work, sir.

Senator WICKER. When might the first deployment be out on the ocean?

Admiral MULLOY. I'll get back to you an exact date, sir——

Senator WICKER. Good.

[The information referred to follows:]

Gerald R. Ford (CVN 78) is the first aircraft carrier to be constructed with EMALS and is planned to make her first deployment in 2019.

Admiral MULLOY.—but I believe it's at the end of this decade.

Senator WICKER. We take questions for the record.

Okay. Now, Senator Hirono was on a very important topic with regard to the *Ohio* replacement class. In your joint statement, which I do commend you all for, "The Navy continues to need significant increases in our top line beyond the FYDP, not unlike that during the period of *Ohio* construction."

What—we know this is expensive, and we're going to wrestle with how to help you on this, because it's a vital leg of our triad. But, what lessons can we learn from the period of the original *Ohio* construction to help us with dealing with the increases in the top line?

Mr. STACKLEY. Sir, let me just describe that—we took a look at history, in terms of "What's this boat going to cost us, as a percentage of our defense budget, as a percentage of our Navy budget, as a percentage of our shipbuilding top line?" As a percentage of our defense budget, it's historically right where the *Ohio* was, and historically right where the *Polaris* was so many years ago.

Senator WICKER. You're not alarmed.

Mr. STACKLEY. Oh, I'm alarmed. Is that—yes, sir.

Senator WICKER. You're just not surprised.

Mr. STACKLEY. I don't think we should be surprised, because this is a significant capital investment that comes along every 30 to 40 years. It's a limited run of very high-end, very capable submarines, as opposed to a long production run. What that means is, when it comes time to recapitalize, there is going to be a significant uptick, bump, increase, in terms of our shipbuilding total obligation authority (TOA). That's what we're seeing as we march into *Ohio* replacement period.

Senator WICKER. Admiral?

Admiral MULLOY. The other point I'd bring you, sir, back then was—it was a national need, and the Navy was internal to the Department of Defense budget, but we did not have a Budget Control Act containing the strategy. So, in this case, when the Secretary of Defense looks at *Ohio* replacement, I should be able to put 1 percent of the DOD budget to the Navy in the fiscal guidance. That means, as opposed to other years, when the Secretary of Defense went to the President who went to Capitol Hill, hey, that 1 percent or, you know, that equivalent then would have been the equivalent of \$5 or \$6 billion a year, was available. But, right now, as you look at the Budget Control Act, every year through 2023—and it was extended 2 years because of the 2014–2015 BBA—through 2023, there is a hard cap on the Department of Defense.

So, therefore, I have to go in and say, was—"Oh, gee, if I want to give *Ohio* replacement the \$5 billion in 2021 to build that ship, who am I going to go through and then take out Air Force missiles or I'm going to take out surface ships or I'm take out Army bri-

gades?" So, that's the biggest difference, I would say, right now, is—we look at, at least the beginning of this program—is we did not have a Budget Control Act on top of the Department of Defense when we built *Ohio*—the *Ohio* replacement—or, pardon me, the *Ohio*'s.

Admiral HILARIDES. I would just—you asked a specific question about what lessons you would take. The lesson of the *Ohio*-class was a very stable requirement—I think we made one major weapons change in the middle of it, but we knew it when we started. It was—started with the C-4 missile, went to the D-5 missile. But, the first boat and the last boat are nearly identical, even today, 30 years into their life. So, that stability of requirements, stability of funding, is what allowed us to build those 18 SSBNs, one after another, one year at a time, until all 18 were done. That is a good way to build ships. It has to be built on an industrial base that's sustained by the SSN production that is more steady-state. But, by definition, when you do it that way, you create that rise for the years that you're building the ships. Without relief, many of the other shipbuilding programs will be very, very difficult to fund.

Senator WICKER. Well, we want to work with you on that, and be part of the solution.

Do members of the subcommittee have questions that need to be asked at this, or can we submit other questions for the record? [No response.]

I thank this talented panel for their time and information.

We will adjourn the hearing. Thank you so much.

[Whereupon, at 11:37 a.m., the subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

SHIP-TO-SHORE CONNECTORS—AMPHIBIOUS ASSAULT

1. Senator MCCAIN. Admiral Mulloy, last week Marine Corps leaders provided testimony before this subcommittee on Marine Corps ground modernization, including the Amphibious Combat Vehicle (ACV). I understand the first ACV, the so-called ACV 1.1, will be a wheeled vehicle with potentially limited swim capability and more reliance on connectors. In view of the restructured ACV program, has the Navy's ability to support ship to shore movement of Marine assault craft changed?

Admiral MULLOY. The Amphibious Combat Vehicle (ACV) program has not changed the Navy's ability to support the movement of Marine assault craft from ship to shore. The Navy and Marine Corps are fully integrated and continue to refine Concept of Operations (CONOPS) development through the USN/USMC Surface Connector Council. This integration will maintain stable programs of record, avoid unnecessary risk, and support amphibious operations.

2. Senator MCCAIN. Admiral Mulloy, will we have enough connectors?

Admiral MULLOY. A fleet of 72 Landing Craft Air Cushion (LCAC) / Ship to Shore Connector (SSC / LCAC-100) type craft provides sufficient capacity to support the most stressing Major Combat Operation (MCO) scenario. This will enable the assault echelons of up to two Marine Expeditionary Brigades (MEB) conduct joint forcible entry operations.

3. Senator MCCAIN. Admiral Mulloy, in a contested anti-access, area denial (A2/AD) environment, from what distance does the Navy envision launching an amphibious assault?

Admiral MULLOY. 25 nm. The 25 nm distance originates as an initial planning consideration in order to conduct over-the-horizon (OTH) amphibious operations. As per Joint Doctrine, the ability to conduct OTH operations enhances security, aids force protection efforts, provides additional maneuver space, and improves the abil-

ity to achieve surprise. The Joint Force Commander (JFC) and Joint Force Maritime Component Commander (JFMCC) will conduct shaping operations to mitigate the threat and establish the requisite conditions for an amphibious operation (establishment of air and maritime superiority). The overall objective of setting these conditions is to permit the amphibious force to close the distance which will allow a faster buildup of combat power ashore of the Marine Expeditionary Brigade (MEB) Assault Echelon.

RESTART OF MARK-48 HEAVY WEIGHT TORPEDO

4. Senator MCCAIN. Admiral Mulloy, can you describe the need and plan for restarting the Mark-48 Heavyweight Torpedo? This budget requests 8 of these in fiscal year 2016 and 145 over the next 5 years.

Admiral MULLOY. In 2010, based on a review of potential warfighting scenarios, the Navy was required to increase its overall MK 48 torpedo inventory requirement. This resulted in a ~30 percent inventory shortfall from our current inventory.

The last MK 48 torpedo was delivered to the fleet in 1996. In support of restarting production, the Navy developed the procurement strategy, updated obsolete design plans, refurbished test equipment, and is in the final stages of preparing for two competitive production contracts, expected to be awarded in the third quarter of fiscal year 2016.

The program of record procures eight (8) MK 48 MOD 7 CBASS heavyweight torpedoes in fiscal year 2016, after completion of required initial non-recurring engineering and Proof of Manufacture unit testing. Procurement will ramp up over the Future Years Defense Program (FYDP), procuring a total of 145 torpedoes between fiscal year 2016 and fiscal year 2020. The production line will also incorporate hardware and software upgrades, once they become available, to keep pace with evolving threats.

VIRGINIA PAYLOAD MODULE

5. Senator MCCAIN. Secretary Stackley and Admiral Hilarides, I understand this budget proposes adding the Virginia Payload Module (VPM) to one *Virginia*-class submarine per year beginning in fiscal year 2019. Can you describe why VPM is required?

Mr. STACKLEY and Admiral HILARIDES. The ability for undersea forces, with their assured access, to be able to provide clandestine strike capability is vital to the joint force as adversaries continue to invest in anti-access area denial systems. Undersea strike capability complicates adversary planning, reastes ambiguity and fosters uncertainty. Retirement of the SSGNs beginning in 2026 reduces our Navy's undersea strike capacity by 60 percent. VPM will enable *Virginia*-class SSNs to cost effectively mitigate the loss of SSGN strike capacity ensuring Navy maintains required clandestine strike capacity. VPM will more than triple the Tomahawk Land Attack Missile (TLAM) strike capacity of SSNs from the current 12 missiles to 40 missiles.

6. Senator MCCAIN. Secretary Stackley and Admiral Hilarides, does the design and technical risk allow us to consider accelerating this program?

Mr. STACKLEY. and Admiral HILARIDES. The Navy and its Virginia Payload Module (VPM) Design Agent, General Dynamics Electric Boat, are currently assessing the feasibility of accelerating the VPM design to enable construction start in fiscal year 2018, the last year of the previously negotiated Block IV fixed price incentive fee multi-year procurement contract. The service's assessment is ongoing and is expected to conclude in Summer 2015.

7. Senator MCCAIN. Secretary Stackley and Admiral Hilarides, what will be the impact on the shipbuilders of building two variants of *Virginia*-class submarines concurrently—one with VPM and one without—as opposed to one or the other?

Mr. STACKLEY and Admiral HILARIDES. The impact on the shipbuilders of building two variants of *Virginia*-class submarines concurrently one with VPM and one without as opposed to one or the other will depend on the acquisition strategy, which has not yet been decided. The Navy continues to look at ways to reduce the cost of VPM while maintaining a balanced portfolio throughout the other Navy shipbuilding programs within the fiscal guidance provided.

LHA-8 ADVANCE PROCUREMENT

8. Senator MCCAIN. Secretary Stackley, given the reintroduction of the well deck and other changes to LHA-8, can you discuss the pros and cons of funding more detailed design and long lead time material in fiscal year 2016 to increase design

maturity and potentially achieve Navy's stated requirement of 11 large deck amphibious ships 1 year earlier in fiscal year 2023?

Mr. STACKLEY. LHA-8 is currently conducting an early industry involvement affordability phase. Upon completion of the affordability phase, proven affordability initiatives will be incorporated in the LHA-8 design in fiscal year 2016. In addition, long lead time material is planned to be procured in fiscal year 2016, including main reduction gear. By funding more detailed design and long lead time material in fiscal year 2016, the LHA-8 program will have more flexibility with eth shipbuilder and government furnished equipment providers to ensure critical path long lead time material is available in the construction phase.

ADDITIONAL DDG PROCUREMENT IN FISCAL YEAR 2016

9. Senator McCAIN. Secretary Stackley, if funding above the President's Budget (PB) were made available, would the Navy support and could the industrial base build an additional DDG if three are authorized in fiscal year 2016?

Mr. STACKLEY. The President's fiscal year 2016 budget request supports the planned Multi-Year Procurement profile for two ships for fiscal year 2016 with the intent to fund one to each shipyard. This profile maintains the planned portfolio for Navy shipbuilding programs at both shipyards.

Funding for an additional DDG in fiscal year 2016 could be beneficial to the overall shipbuilding program as a mitigator to the impending budget challenges posed by construction of the *Ohio* replacement. Too, such funding could be beneficial for providing added stability to our shipbuilding industrial base.

However, the Navy would not support the addition of a third DDG in fiscal year 2016 if this additional ship was funded at the expense of other Navy shipbuilding program (or other higher priorities represented in the President's Budget request). If a third DDG were added to the fiscal year 2016 budget, the Navy's assessment is that the industrial base would not be capable of accelerating the construction and delivery rate of the current fiscal year 2013–2017 multiyear ships, which would effectively equate to an additional ship being built and delivered on the back end of the current multiyear.

10. Senator McCAIN. Secretary Stackley, how would the existing multi-year contract be affected?

Mr. STACKLEY. Long term stability, competition, and judicious procurement of economic order quantity material have been the key factors contributing to the significant savings provided by the DDG-51 multi-year contracts. If an additional DDG were funded in fiscal year 2016, the Navy would require that the savings provided by the additional ship be in-line (or greater than) the per-ship savings provided by the contracted multi-year ships, and we would impose the same measures of 'stability' represented by this increased workload on its planning and execution as exists on the multi-year ships currently under contract. This would, in effect, result in a stretch out of the multi-year contract schedule.

ADDITIONAL SSN PROCUREMENT IN FISCAL YEAR 2016

11. Senator McCAIN. Secretary Stackley, if funding above the PB were made available, would the Navy support and could the industrial base build an additional SSN if three are authorized in fiscal year 2016?

Mr. STACKLEY. Funding for an additional SSN in fiscal year 2016 could be beneficial to the overall shipbuilding program as a mitigator to the impending budget challenges posed by construction of the *Ohio* replacement. Too, such funding could be beneficial for providing added stability to our shipbuilding industrial base.

However, the Navy would not support the addition of a third SSN in fiscal year 2016 if this additional ship was funded at the expense of other Navy shipbuilding program (or other higher priorities represented in the President's Budget request). If a third SSN were added to the fiscal year 2016 budget, the Navy's assessment is that the industrial base would not be capable of accelerating the construction and delivery rate of the current Block IV fiscal year 2014–2018 multiyear ships, which would effectively equate to an additional ship being built and delivered on the back end of the current multiyear.

12. Senator McCAIN. Secretary Stackley, how would the existing multi-year contract be affected?

Mr. STACKLEY. Long term stability, competition, and judicious procurement of economic order quantity material have been the key factors contributing to the significant savings provided by the *Virginia*-class submarines multi-year contracts. If an additional SSN was funded in fiscal year 2016, the Navy would require that the sav-

ings provided by the additional ship be in-line (or greater than) the per-ship savings provided by the contracted multi-year ships, and we would impose the same measures of ‘stability’ represented by this increased workload on its planning and execution as exists on the multi-year ships currently under contract. This would, in effect, result in a stretch out of the multi-year contract schedule.

MARITIME STRATEGY

13. Senator McCAIN. Admiral Mulloy, the new Maritime Strategy concludes that “Naval Logistics Integration is a key enabler of our ability to sustain forces operating from the sea. Historically, the capability to sustain distant operations has served as a cornerstone of naval power projection.” What measures have you put in place to ensure our current logistics concepts of operation and force structure plans for the Combat Logistics Fleet (CLF) will be viable in the potential “contested environments” described in the new Maritime Strategy, where CLF ships will be at more risk and losses would be more likely?

Admiral MULLOY. In order to determine the number and types of ships required, we conduct periodic force structure assessments to provide a comprehensive review of operational demands. Our 2012 Force Structure Assessment (FSA) determined a post-2020 requirement for 306 ships in the battle force (including 29 CLF ships) and emphasized forward presence while re-examining resourcing requirements for operational plans and defense planning scenarios. In 2014, we conducted an interim update to the 2012 FSA which re-validated that 29 CLF ships were sufficient to meet the demands of a globally distributed force in the near term with the retention of T-AKEs in full operating status.

The analysis also determined that the programmed force structure should be re-evaluated post fiscal year 2020, as LCS delivers in numbers and platforms such as JHSV and Afloat Forward Staging Bases potentially take on more robust employment profiles than initially envisioned. The Navy plans to conduct a follow-on assessment in fiscal year 2020 to review/update CLF sufficiency requirements. The next generation oiler, T-AO(X), begins delivery in fiscal year 2020 and an assessment at that time would be timely enough to affect CLF procurement numbers should a change be required.

14. Senator McCAIN. Admiral Mulloy, do you anticipate that our current approach to sustaining underway forces will need to change in a highly contested environment? For example, we have based our CLF fleet requirements on a very efficient model of deployed force operating in groups that can be resupplied by one or two CLF ships. If the force is required to be more distributed due to A2/AD threats, how does that change our logistics concepts and what are the implications for attributes of a future CLF fleet?

Admiral MULLOY. Navy just completed a CLF assessment in fiscal year 2015 that indicated CLF force structure was sufficient to meet the demand of a globally distributed force in the near term with the retention of all T-AKEs in full operating status. The assessment did not specifically address distributed lethality, but this was covered in the 2020 Campaign Analysis Study, which was done in parallel and considered the threats of an adversary possessing A2/AD capabilities, including anti-ship ballistic and cruise missiles, land-based maritime strike aircraft, submarines, and sea mines. The study also determined that the programmed force structure should be reevaluated post fiscal year 2020, as LCS delivers in numbers and platforms such as JHSV and Afloat Forward Staging Bases potentially take on more robust employment profiles than initially envisioned. Navy plans to conduct a follow-on assessment in fiscal year 2020 to review/update CLF sufficiency requirements.

COMBAT LOGISTICS FLEET SHIPS

15. Senator McCAIN. Admiral Mulloy, the Navy’s multiproduct replenishment ships (AOEs and AORs) were originally tasked as part of a two-stage concept of operations to deliver supplies to carrier battle groups operating in higher-threat areas. As part of this model, the Navy’s single-product CLF ships—the oilers, ammunition ships, and stores ships—called for them to deliver their products to the AOEs and AORs, which would then take those products into the higher-threat areas where the carrier battle groups were operating.

Is it true that today CLF ships generally only “shuttle” fuel and supplies out to deployed ships from regional supply and fuel depots, as opposed to carrying all the fuel and supplies needed for a carrier strike group or amphibious ready group deployment with them and deploying with the group? If this is true, would the Navy be better off building smaller CLF ships that could be less expensive and thus constructed in larger quantities to account for combat losses?

Admiral MULLOY. Our laydown of the forces are dependent on the operational situation, to include the specific nature of the threat environment and the geography of the operating area. Whether CLF assets are permanently located in the geographic commander's area of responsibility or they deploy with a battle group from CONUS, they will always be required to periodically console from regional logistics hubs and "shuttle" fuel and supplies out to deployed ships, as no CLF asset can embarked sufficient quantities of all required classes of supply to support a battle group for an entire deployment or major contingency response.

The mix of CLF ships contained in the Annual Long-Range Plan for Construction of Naval Vessels for fiscal year 2016, possesses the requisite capability and capacity to support the COCOMs to meet mission demands to Maintain a Safe, Secure, and Effective Nuclear Deterrent; Deter and Defeat Aggression, Project Power Despite Anti-access/Area Denial Challenges; Counter Terrorism and Irregular Warfare; Provide a Stabilizing Presence; Conduct Stability/Counterinsurgency Operations.

16. Senator MCCAIN. Admiral Mulloy, given that potential adversaries in coming years are expected to field increasingly capable A2/AD systems for threatening U.S. surface ships, what would be the pros and cons of transitioning back to a two-stage CLF concept of operations like was conducted during the Cold War?

Admiral MULLOY. The CLF fleet contained in the Annual Long-Range Plan for Construction of Naval Vessels for fiscal year 2016 is well suited for operations under a variety of CONOPs and throughout the spectrum of military operations. These CONOPs and the number of cruiser/destroyer type ships, as described in the fiscal year 2016 long-range plan, possess the requisite capability and capacity to support the Combatant Commanders to meet mission demands. These mission demands include providing adequate protection for CLF transiting directly from forward logistics sites to deployed customer ships, as is commonly seen in dispersed peacetime operations, as well as supporting a two stage concept where a station ship remains under a strike group's protective envelope, and is resupplied by CLF shuttle ships transiting from logistics sites to the sea base with an escort. Our laydown of the forces and eventual employment are dependent on the operational situation, to include the specific nature of the threat environment and the geography of the operating area.

17. Senator MCCAIN. Admiral Mulloy, what role do constraints on funding play in assessing this issue?

Admiral MULLOY. Funding constraints, such as a return to sequestration in fiscal year 2016, would necessitate a revisit and revision of the defense strategy. The required cuts would force us to further delay critical warfighting capabilities, reduce readiness of forces needed for contingency responses, further downsize weapons capacity, and forego or stretch procurement of force structure as a last resort. Sequestration would significantly reduce the Navy's ability to fully implement the defense strategy and damage national security.

18. Senator MCCAIN. Admiral Mulloy, to what extent does the Navy plan to escort CLF ships with CRUDES/LCS vs. expecting CLF ships to be able to defend themselves in wartime?

Admiral MULLOY. The disposition of forces will always be dictated by the operational situation. CLF ships have limited self-protection, particularly, against the evolving Anti-Access/Area Denial (A2/AD) threat. During periods of crisis in an A2/AD environment, the Navy will deploy forces to best provide an integrated defense of forces forward and maintain essential sea lines of communication. CLF on-station ships will remain under the maritime defense umbrella of supported forces and CLF shuttle ships, transiting between the area of operations and logistics hubs will be escorted as the operational environment dictates.

19. Senator MCCAIN. Admiral Mulloy, if escorts are planned, describe the conops and the quantity/type/allocation of these escort ships necessary to meet all wartime missions on the required timelines?

Admiral MULLOY. As threat levels increase, forward deployment of maritime patrol, littoral combat ships, carrier strike groups and independent surface action groups are planned to provide integrated maritime, air and missile defense for naval forces and maintain essential sea lines of communications. Although globally distributed, our maritime surveillance, anti-submarine warfare, air and missile defense assets will be positioned as the tactical situation dictates to best protect the fleet and its critical sea lines of communications.

The quantity and type of ships contained in the Annual Long-Range Plan for Construction of Naval Vessels for fiscal year 2016, possesses the requisite capability and

capacity to carry out the DSG mission. They enable the COCOMs to meet mission demands to Maintain a Safe, Secure, and Effective Nuclear Deterrent; Deter and Defeat Aggression, Project Power Despite Anti-access/Area Denial Challenges; Counter Terrorism and Irregular Warfare; Provide a Stabilizing Presence; Conduct Stability/Counterinsurgency Operations; and Operate Effectively in Cyberspace/Space.

20. Senator McCAIN. Admiral Mulloy, if LCSs are escorts, how do their capabilities match up against the expected threat?

Admiral MULLOY. Littoral Combat Ship (LCS) capabilities match up well against expected threats in the Surface Warfare (SUW) and Anti-Submarine Warfare (ASW) escort role, and when coupled with a DDG-51 Class Destroyer in an adaptive force package, can provide escort capability across the full spectrum of ASW, SUW and Air Warfare.

LCS with a SUW Mission Package is an effective SUW escort—especially against swarms of Fast Inshore Attack Craft (FIAC). LCS has inherent capability with the 57mm gun, the 30mm gun systems, and the embarked helicopter against small boats. With the planned addition of the Surface-to-Surface Missile Module and Hellfire Longbow in fiscal year 2017, these ships will provide increased SUW capability.

LCS with an ASW Mission Package is an effective ASW escort. It will be equipped with torpedo defense, passive detection capability with the Multi-Function Towed Array (MFTA), and active detection capability with the Continuous Active Sonar / Variable Depth Sonar (CAS/VDS). With its embarked helicopter, LCS is able to prosecute threat submarines in defense of the force.

LCS is not intended to operate as an Area Air Defense escort and is equipped with self-defense anti-air warfare capability only.

Analysis of the LCS ASW Mission Package by Johns Hopkins University Applied Physics Lab indicates that LCS will enhance the Fleet's ASW capability, a vital component of high value unit defense. In addition, recent war games conducted at the Naval War College involving LCS demonstrated that adding LCS to an adaptive force package, for either its SUW or ASW capabilities, strengthens the force and provides improved defense against surface and sub-surface threats in the escort role.

21. Senator McCAIN. Admiral Mulloy, since the end of the Cold War, the CLF fleet transitioned from a force of ships with all-Navy crews to a force of MSC-operated "T" ships with largely civilian crews. Now that we may be shifting from the post-Cold War era to a new international security environment characterized by, among other things, significant threats to U.S. surface ships operating in blue waters, what would be the pros and cons of transitioning CLF ships back to all-Navy crews?

Admiral MULLOY. Whether CLF ships are manned by merchant mariners or sailors, the Navy does not believe the concept for CLF protection will change, and we are confident that merchant mariners will answer the call even in the face of an increasing threat. Maintaining MSC or a hybrid crew results in significant manpower and maintenance cost savings. MSC manning allows Navy sailors to concentrate on missions that require more experienced personnel. There is currently no requirement to transition back to Navy crews on CLF ships.

22. Senator McCAIN. Admiral Mulloy, what role do constraints on funding play in assessing this issue?

Admiral MULLOY. Because MSC manning results in significant manpower and maintenance cost savings, fiscal constraints would increase the value of this benefit as Navy balances between capability, capacity and readiness.

23. Senator McCAIN. Admiral Mulloy, how would the execution of U.S. contingency plans be affected at various stages of a conflict by battle losses of CLF ships?

Admiral MULLOY. Any losses to our capacity to provide logistical support could have a major impact on our ability to sustain protracted naval operations, whether those losses are due to host nation sensitivities, destruction of vulnerable naval logistic support bases, or loss of CLF.

Executing appropriate naval concepts of operations and bringing to bear adequate operational capabilities, in sufficient quantities, that are informed by the operational situation is critical to the success of any contingency plan. Establishing and maintaining close relations with partner nations in the region, to ensure that forward deployed naval forces can be protected and sustained can also be integral to our success. If our naval forces cannot provide adequate defense of essential sea

lines of communications, critical to sustainment, naval concepts of employment and plans may have to be adjusted.

TAO(X)S

24. Senator McCAIN. Admiral Mulloy, will the TAO(X)s be equipped with a quantity of ship self-defense systems closer to that of that of the AOEs and AORs as originally built, or closer to that of the *Kaiser*-class oilers? If the latter, what is the Navy's strategy for ensuring the survivability of TAO(X)s operating in higher-threat areas?

Admiral MULLOY. The T-AO(X) will have the same self-defense systems as the *Kaiser*-class oilers, or any other MSC operated CLF ship (i.e. T-AOE vs AOE as built). During periods of crisis in an A2/AD environment, the Navy will deploy forces to best provide an integrated defense of forces forward and maintain essential sea lines of communication, critical to providing logistical support. CLF on-station ships will remain under the maritime defense umbrella of supported forces and CLF shuttle ships, and transiting between the area of operations and logistics hubs will be escorted as the operational environment dictates.

25. Senator McCAIN. Admiral Mulloy, if the AOEs and AORs required a higher number of ship self-defense systems to counter potential threats during the Cold War, why would the TAO(X)s not similarly require a higher number of ship self-defense systems in coming years, when potential adversaries are expected to field increasingly capable A2/AD systems for threatening U.S. surface ships?

Admiral MULLOY. The T-AO(X) will have the same self-defense systems as the *Kaiser*-class oilers, or any other MSC operated CLF ship (i.e. T-AOE vs AOE as built). During periods of crisis in an A2/AD environment, the Navy will deploy forces to best provide an integrated defense of forces forward and maintain essential sea lines of communication, critical to providing logistical support. CLF on-station ships will remain under the maritime defense umbrella of supported forces and CLF shuttle ships, transiting between the area of operations and logistics hubs will be escorted as the operational environment dictates.

QUESTIONS SUBMITTED BY SENATOR ROGER WICKER

NATIONAL SECURITY VESSEL

26. Senator WICKER. Secretary Stackley, the fiscal year 2016 Department of Transportation's budget request for The United States Maritime Administration (MARAD) includes \$5 million for a national security multi-mission vessel design. This new ship would replace the 53-year-old Training Ship—Empire State operated by State University of New York (SUNY) Maritime College, which will reach the end of its service life in 2019.

Once constructed and operational, the plan for the new National Security Multi-Mission Vessel is to be readily available for deployment to support requirements for national security, as well as Department of Homeland Security (DHS), Department of Defense (DOD), emergency, and humanitarian missions.

Are you familiar with MARAD's proposed National Security Multi-Mission Vessel (NSMV) for which the administration has requested design funding?

Mr. STACKLEY. Yes, The NMSV is a Department of Transportation (DOT) effort for the recapitalization of public nautical school ships. It has been discussed with my staff, and is being developed with input from my office and other offices within the Navy, including Military Sealift Command. The Navy has had representatives assist DOT as technical advisors at various steps in the process, including requirements development.

The current fleet of seven training ships are owned and maintained by DOT and loaned to the six State Maritime Academies (SMAs) and U.S. Merchant Marine Academy (USMMA) as required by statute. The ships are employed as academic and seagoing laboratories providing the Midshipmen and Cadets with critical hands-on navigation and engineering training that is mandatory for their U.S. Coast Guard (USCG) credential.

The Maritime Administration's State Maritime Academy proposal request includes \$5 million for the planning and design of a new construction NSMV to support development of program requirements and delivery strategy for DOT's academy training ship program.

- Funding supports the NSMV design initiative, not implementation of a new program of record.

- Supports short-term planning activities, including: study of requirements alternatives, cost-tradeoffs, cost analysis, schedule, acquisitions strategy, and vessel design.
- Support long-term planning activities, including study of program delivery strategy and production timetables for the incremental replacement of the current academy training ships.

27. Senator WICKER. Secretary Stackley, what is your position on the proposal?

Mr. STACKLEY. The proposed NSMV would provide a modern, functional, environmentally compliant training ship which could be readily deployed to support multiple Department of Homeland Security national security missions and Department of Defense (DOD) emergency and humanitarian missions.

The NMSV is a critical aspect to the training of qualified U.S. mariners, who are integral to supporting economic and national security. School ships have been used in the past to provide Federal response for humanitarian assistance and disaster relief (HA/DR) (e.g. Hurricanes Katrina and Rita and Super Storm Sandy). The proposed new design would provide a modern training platform, with increased capabilities to support HA/DR missions in the future. The NSMV recapitalization of five training ships owned and maintained by DOT will expand upon the capabilities of the training ships to support such missions.

Although the Navy has no specific requirement for this vessel, we do see the value in having a low cost Federal resource that could be called upon in lieu of a military resource which has other operational obligations and a significantly higher operating cost. Additionally, there may be utility in a common hull design and machinery space for both the NSMB and future non-combatant vessels.

ELECTROMAGNETIC AIRCRAFT LAUNCH SYSTEM AND ADVANCED ARRESTING GEAR

28. Senator WICKER. Secretary Stackley, Electromagnetic Aircraft Launch System (EMALS) and Advanced Arresting Gear (AAG) are core technologies of the USS *Ford* (CVN-78) as well as all future U.S. aircraft carriers. The Government Accountability Office (GAO) recently published a report that stated the Navy will defer some work on CVN-78 until after delivery of the ship in order to create a funding reserve to pay for any additional, unanticipated cost growth. Deferring work or underfunding sustainment of critical repair parts has predictable results—a less capable ship when delivered.

Will any work on EMALS or AAG be deferred until after the delivery of CVN-78? If so, what work or will be deferred?

Mr. STACKLEY. EMALS and AAG work will be completed during the ship construction phase of each *Ford*-class ship and not deferred until after delivery. These systems are required for the ship's baseline capability to launch and recover aircraft for flight deck certification and demonstration of key performance parameters.

29. Senator WICKER. Secretary Stackley, what is the status of U.S. Navy sustainment funding/repair parts for EMALS and AAG in fiscal year 2016 and throughout the Future Year Defense Plan, both in the production contract and system development and demonstration contract?

Mr. STACKLEY. The Navy has defined the sustainment requirements for the concurrently developed technologies and is funding the spare and repair parts for EMALS and AAG within the existing budget. In addition, the Navy is addressing all CVN 78 class sustainment issues in fiscal year 2016 and future years through the program planning and budgeting process. Overall, CVN 78 sustainment includes the requirement for life-cycle management, engineering, training and logistics support for new/modified systems and technologies.

The Navy has contracts in place with General Atomic for the EMALS and AAG spares required during installation and test on CVN 78, and has allocated approximately \$17 million in fiscal year 2015 to address spares requirement post CVN 78 delivery. Spares and repairs required for EMALS and AAG system development and demonstration (SDD) are within the scope of their respective SDD contracts and with General Atomics and are included in the President's fiscal year 2016 budget request.

30. Senator WICKER. Secretary Stackley, maximizing sortie generation rate was the purpose behind these new technologies. Will underfunding sustainment of EMALS and AAG affect the originally designed sortie rate?

Mr. STACKLEY. EMALS and AAG are technologies that contribute to *Ford*-class aircraft carrier Sortie Generation Rates. In addition, EMALS and AAG reduce CVN 78 class aircraft carrier manning, reduce life cycle costs, and provide a larger aircraft envelope to support existing and future carrier airwing. Underfunding

sustainment of EMALS and AAG could impact the operational availability of these systems onboard *Ford*-class aircraft carriers during operational periods.

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

COST GROWTH

31. Senator AYOTTE. Secretary Stackley and Admiral Hilarides, what percentage of the *Ford*-class's design was complete in 2008 when the construction contract was signed?

Mr. STACKLEY. The CVN 79 design is more mature than was the CVN 78 design when the CVN 78 construction contract was signed. In addition, CVN 79 construction material availability is higher in comparison to the material availability when the CVN 78 and CVN 79 design maturity and material availability in terms of percent complete at times of construction contract award.

At Detail Design and Construction Award	CVN 78 (2008)	CVN 79 (2015)
Design product model complete	65%	100%
Initial drawings released	25%	78%
Construction Material Availability	83%	97%

32. Senator AYOTTE. Secretary Stackley and Admiral Hilarides, what are you doing to reduce concurrency in Navy shipbuilding programs?

Mr. STACKLEY and Admiral HILARIDES. The Navy currently has disciplined processes that provide the rigor required for ensuring design quality, readiness, and progress is adequate for sustained and efficient production for ships prior to start of construction. The Navy's Systems Engineering approach provides opportunities to reduce and manage concurrency risk through a series of reviews including critical design reviews, internal Navy gate reviews, acquisition milestone reviews, all coupled with stringent configuration control processes. Most notably just prior to the start of construction, shipyards conduct Production Readiness Reviews (PRRs) where the Navy is presented detailed analyses for planned construction efforts at the system level in efforts to provide detailed justification and rationale for the ship's readiness for the start of production. The PRR is designed as a system-level preparation tool and used in assessing risks as the ship transitions from design development to production.

Additionally, Section 124 of the fiscal year 2008 National Defense Authorization Act (Public Law 110-181) required the Secretary of the Navy, concurrent with approving the start of construction of the first ship for any major shipbuilding program, to submit a report to the Congress on the results of any PRR and certify that the findings of any such review support commencement of construction.

Because the detail design and construction of the lead ship covers a substantial period of time, award of one or more follow-on ships typically occurs prior to delivery of the lead ship. This approach supports the Navy's goal and intent to provide stable requirements for shipbuilding quantities which further promotes executable, efficient workloads in stabilizing the shipbuilding and supplier industrial base.

Where warranted the Navy may choose to build and test prototypes for major pieces of equipment and subsystems as a means of risk mitigation; thereby reducing the risks of integration and testing for continued efficiencies to be gained during construction, ultimately contributing towards improved performance for follow on ships.

STATE OF INDUSTRIAL BASE

33. Senator AYOTTE. Secretary Stackley and Admiral Hilarides, how would you describe the state of the industrial base that supports shipbuilding?

Mr. STACKLEY and Admiral HILARIDES. The report is "For Official Use Only" and is retained in committee files.

34. Senator AYOTTE. Secretary Stackley and Admiral Hilarides, to what degree are key Navy shipbuilding programs reliant on single source suppliers?

Mr. STACKLEY and Admiral HILARIDES. The U.S. Naval shipbuilding industrial base is a complex, multi-tiered network of equipment, system and component suppliers. Due to the unique characteristics of U.S. Navy shipbuilding programs, constantly advancing technology, and economic factors, the number and type of suppliers supporting our Navy is ever-changing. Some suppliers will enter and exit the

shipbuilding industrial base as supply and demand for products change, while other suppliers have supported our ship programs since inception. There are single/sole-source suppliers of critical shipbuilding/manufacturing components required for our naval ships.

Reliance on single source suppliers varies by ship program. Our nuclear carrier new construction, carrier refueling complex overhauls and submarine programs have more single source suppliers than do our surface ship programs. These three nuclear ship programs have 40–80 single/sole source suppliers and comprise a large percentage of the critical suppliers identified by the programs. Single/sole source surface ship suppliers typically are less than a dozen for most ship classes, but like the nuclear ships, these sole source suppliers make up over half of the critical suppliers identified by these ship programs.

35. Senator AYOTTE. Secretary Stackley and Admiral Hilarides, how has the frequent lack of timely and predictable funding impacted suppliers—particularly small and medium-sized suppliers—who are critical to the production of our nation's ships and submarines?

Mr. STACKLEY and Admiral HILARIDES. Defense suppliers' cost and schedule performance relies upon timely contracting and receipt of funds in support of our major programs. Large-sized suppliers typically have sufficient workload and business base to weather the impacts of funding instability. Small and medium-sized suppliers are prone, however, to suffer inefficiencies and layoffs in response to funding instability. These impacts harm our program in the short term as a result of cost increases, and in the long term as a result of loss of skilled labor and potential loss of suppliers in our vendor base. Additionally, suppliers cite difficulty planning future work and unexploited savings opportunity as major concerns. These difficulties in formulating accurate plans for future work result in an inability to arrive at long-term purchasing agreements with vendors, which lead to higher material prices.

This affects Navy ship prices and contributes to deterioration in Navy buying power. In order to preserve key industrial base capabilities, this cycle needs to be broken. The Navy has engaged in initiatives such as advanced procurement, economic order quantity, multi-year procurements, and material commonality, to provide stability and mitigate volatility at the supplier level. In addition, DOD and the Navy have programs in place to address supplier issues, including programs to improve productivity, efficiency, and competitiveness. The Navy continues to work closely with prime contractors to ensure key suppliers are identified and effective action is taken to reduce costs.

36. Senator AYOTTE. Secretary Stackley and Admiral Hilarides, if sequestration returns next year, what would be the impact on the Navy's shipbuilding suppliers?

Mr. STACKLEY and Admiral HILARIDES. If sequestration returns next year, our shipbuilding suppliers would be impacted in the same manner as the ship programs that they support. A return to sequestration in fiscal year (FY) 2016 would necessitate a revisit and revision of the Defense Strategic Guidance. Required cuts will force us to further delay critical warfighting capabilities, reduce readiness of forces needed for contingency response, further downsize weapons capacity, and forego or stretch procurement of ships and submarines only if necessary. We will be unable to mitigate the shortfalls like we did in fiscal year 2013 because prior-year investment balances were depleted under fiscal year 2013 sequestration.

Because of their irreversibility, force structure cuts represent options of last resort for the Navy. Disruptions in naval ship design and construction plans are significant because of the long-lead time, specialized skills, and extent of integration needed to build military ships. Because ship construction can span up to nine years, program procurement cancelled in fiscal year 2016 will not be felt by the Combatant Commanders until several years later when the size of the battle force begins to shrink as those ships are not delivered to the fleet at the planned time. Likewise, cancelled procurement in fiscal year 2016 will cause some suppliers and vendors of our shipbuilding industrial base to close their businesses. This skilled, experienced and innovative workforce cannot be easily replaced and it could take years to recover from layoffs and shutdowns; and even longer if critical infrastructure is lost. Stability and predictability are critical to the health and sustainment of this vital sector of our Nation's industrial capacity.

OHIO-CLASS SUBMARINE REPLACEMENT PROGRAM

37. Senator AYOTTE. Secretary Stackley, if additional funding is not provided for the procurement of the *Ohio* replacement, what specific impact will it potentially have on other important Navy programs?

Mr. STACKLEY. Within the Navy's traditional Total Obligation Authority, and assuming that historic shipbuilding resources continue to be available, the OR SSBN would consume about half of the shipbuilding funding available in a given year—and would do so for a period of over a decade. The significant drain on available shipbuilding resources would manifest in reduced procurement quantities in the remaining capital ship programs. Therefore, additional resources for shipbuilding will likely be required during this period.

Since the CVN funding requirements are driven by the statutory requirement to maintain eleven CVNs, and accounting for one OR SSBN per year (starting in fiscal year 2026), there would only be about half of the resources normally available to procure the Navy's remaining capital ships. At these projected funding levels, Navy would be limited to on average, as few as two other capital ships (SSN, DDG, CG, LPD, LHA, etc.) per year throughout this decade.

Such low shipbuilding rates for an extended period of time would result in a battle force inadequately sized to meet our naval requirements in support of the Defense Strategic Guidance. Further, there is significant risk to the industrial base in this case since low production rates outside of the SSBN and CVN production lines may not provide adequate work to keep shipyards operating at minimum sustaining levels and could result in shipyard closures. Compounding these impacts, shipbuilding costs would increase as a direct result of the severe reduction of non-nuclear construction.

Navy's ability to recover Fast Attack Submarine, Large Surface Combatant, Small Surface Combatant and Amphibious Force inventories lost during the decade and a half in which the SSBNs were being procured would be challenged, particularly in those parts of the industrial base permitted to atrophy during this period. Given such extraordinary impacts to Navy shipbuilding and attendant impacts to the size of our Fleet, it would be necessary to increase our shipbuilding budget at the expense of other equally critical capabilities necessary to the Navy/Marine Corps mission.

ADVANCED CONNECTORS

38. Senator AYOTTE. Admiral Mulloy, the Marine Corps testified that the Amphibious Combat Vehicle (ACV) is one of its top modernization priorities. Given the future threat environment, the ACV will require "advanced connectors;" other platforms that will transport it quickly from the ship to within range of shore. Current platforms do not provide the necessary range, speed, and survivability vital to future amphibious operations. Does the Navy have a long-term plan to solve this problem?

Admiral MULLOY. The current ACV does not require any changes to existing or programmed connectors (i.e., LCAC, SSC, LCU, SC(X)R).

ACV characteristics and capabilities will be integrated within the future comprehensive surface connector strategy. The Marine Corps is actively considering the capabilities and limitations of the Navy's current fleet of surface connectors and future development of replacements when developing requirements for ACV procurement to ensure interoperability. The Navy and Marine Corps are fully integrated on requirements development for the ACV and remain committed to a high water speed vehicle as part of a complementary family of surface and air connectors.

The Office of Naval Research (ONR) is developing a Science and Technology (S&T) portfolio of initiatives to gain knowledge and reduce technology risk in support of the 2025 ACV 2.0 Decision Point. ACV 2.0 is a planning construct that pursues desired High Water Speed (HWS) capability; not a specific, singular vehicle-type or craft. The desired capability sought by the Marine Corps for ACV 2.0 is the ability to achieve HWS in ship-to-shore operations to extend the amphibious task force's capacity for littoral maneuver. ACV 2.0 may consist of a self-deploying assault amphibian, follow-on wheeled ACV, advanced generation connectors or a combination of those options. ONR, in coordination with PEO-LS and DC CD&I, is forming an Integrated Product Team to coordinate HWS S&T initiatives and identify specific investment areas. Three broad technical lanes are identified as: 1) Enhancements to legacy platforms; 2) New concepts for amphibian platforms; and 3) Future connector-enabled HWS.

AMPHIBIOUS SHIP PROGRAM

39. Senator AYOTTE. Secretary Stackley, Admiral Hilarides, and Admiral Mulloy, the fiscal year 2016 Budget seeks research and development funding for the LX(R) program and funding for a 12th LPD-17 class ship. If all of this happens, the amphibious force will grow to 34 ships. Is 34 the right number of amphibious vessels?

Mr. STACKLEY, Admiral HILARIDIES, and Admiral MULLOY. The Chief of Naval Operations and Commandant of the Marine Corps have determined that the force structure for amphibious lift requirements is 38 amphibious ships, fiscally constrained to 33 ships. There are two main drivers of the amphibious ship requirement: maintaining persistent forward presence, which enables both engagement and crisis response, and delivering the assault echelons of up to two Marine Expeditionary Brigades (MEB) for joint forcible entry operations. Balancing the total naval force structure requirements against fiscal projections imposes risk on meeting this requirement. Based on the footprint of a 2.0 MEB assault echelon force, a minimum of 30 operationally available ships are necessary to provide a force made up of ten Amphibious Assault Ships (LHD/LHA), ten Amphibious Transport Docks (LPD) and ten Dock Landing Ships (LSD).

The 2014 update to the 2012 Force Structure Assessment (FSA) reflects an anticipated increase in the Amphibious Warfare ship requirement to 34 ships and includes an additional LPD to reduce risk in the generation of ships necessary to conduct a 2.0 MEB assault echelon forcible entry operation. This permits the Navy to maintain a 4-ship Amphibious Ready Group (ARG) in the Forward Deployed Naval Force (FDNF) without disrupting the deployment cycles of the remaining non-FDNF ARGs. The added presence provides flexibility in the Pacific Theater of Operations and accommodates disaggregated or split ARG operations to increase the commander's area of influence. This requirement will be reviewed during the next full FSA.

40. Senator AYOTTE. Secretary Stackley, Admiral Hilarides, and Admiral Mulloy, what is the Marine Corps' requirement for amphibious vessels? When will we reach that number?

Mr. STACKLEY, Admiral HILARIDIES, and Admiral MULLOY. The Chief of Naval Operations and Commandant of the Marine Corps have determined that the force structure for amphibious lift requirements is 38 amphibious ships, fiscally constrained to 33 ships (11 LHD/LHAs, 11 LPDs, and 11 LSDs). Balancing the total naval force structure requirements against fiscal projections imposes risk on meeting this requirement. Based on the footprint of a 2.0 MEB assault echelon force, a minimum of 30 operationally available ships are necessary to provide a force made up of ten Amphibious Assault Ships (LHD/LHA), ten Amphibious Transport Docks (LPD) and ten Dock Landing Ships (LSD). The fiscal year 2016 shipbuilding plan will result in a projected amphibious ship force structure of at least 31 ships in the near-term and maintains at least 33 ships throughout the 2020s and 2030s. At the end of fiscal year 2018, the Amphibious Force Structure will be 35 ships, which includes 11 LHD/LHAs, 12 LPDs, and 12 LSDs.

41. Senator AYOTTE. Secretary Stackley, Admiral Hilarides, and Admiral Mulloy, what is the impact on our national security and the Navy's ability to project power if we are short on amphibious vessels?

Mr. STACKLEY, Admiral HILARIDIES, and Admiral MULLOY. Amphibious ships operate forward to support allies, respond to crises, deter potential adversaries, and provide the nation's best means of projecting sustainable power ashore; they also provide an excellent means for providing humanitarian assistance and disaster relief. Amphibious forces comprised of Sailors, Marines, ships, aircraft and surface connectors provide the ability to rapidly and decisively respond to global crises without a permanent footprint ashore that would place unnecessary political or logistical burdens upon our allies or potential partners. There are two main drivers of the amphibious ship requirement: maintaining persistent forward presence, which enables both engagement and crisis response, and delivering the assault echelons of up to two Marine Expeditionary Brigades (MEB) for joint forcible entry operations. A reduced amphibious inventory means there is less margin for error, and a reduced ability to respond to unforeseen or emergent circumstances, and to meet the strategic goals outlined in the QDR and DSG respectively. Further, it would mean that the in-service amphibious ships would be operated at such high tempo that maintenance cost and service life would likely be affected.

CHINA'S MILITARY MODERNIZATION

42. Senator AYOTTE. Admiral Mulloy, in your testimony before the House Armed Services Committee on February 25, you said that China's submarine force is growing "at a tremendous rate", and that their number of diesel and nuclear attack submarines has surpassed ours. What is your assessment of China's submarine fleet?

Admiral MULLOY. China's integration of more advanced submarines and deployments into broader areas are expected to continue through 2020. China continues

progress with the design of more advanced submarines, weapons, and sensors. To date, the People's Liberation Army Navy (PLA(N)) operates domestically designed nuclear ballistic missile submarines (SSBN), nuclear attack submarines (SSN), and conventional submarines (attack submarines (SS) and diesel submarines-AIP equipped (SSP)).

However, I misspoke in the HASC hearing on February 25, 2015. In response to Representative Hartzler's question about the numbers and capability of China's submarines, I said that China had more submarines than the United States. However, current inventory shows that China has 63 submarines (4 SSBN, 5 SSN, 12 SSP, and 41 SS), which is fewer than the 71 submarines that the U.S. Navy currently has in inventory. I meant to say that at the pace they are building, China could exceed the U.S. in quantity by 2020. The quality of U.S. submarines remains superior, but China is making significant advances in their capability to build submarines.

43. Senator AYOTTE. Admiral Mulloy, what implications does the growth in China's submarine have for America's submarine fleet and anti-submarine capabilities?

Admiral MULLOY. China's integration of more advanced submarines and deployments into broader areas are expected to continue through 2020. China continues progress with the design of more advanced submarines, weapons, and sensors. As the number of modern and capable submarines fielded by our adversaries continues to rise, it reduces our relative warfighting advantage in the undersea domain, adding risk should we need to engage in conflict and potentially reducing credibility to deter adversaries and assure allies in the future.

QUESTIONS SUBMITTED BY SENATOR MAZIE HIRONO

SHOCK TESTING OF CVN-78

44. Senator HIRONO. Secretary Stackley, the Navy routinely performs testing on new ship classes to determine that these ships are capable of withstanding possible damage in combat operations. One of these tests is called a shock trial. For the CVN-78 program, I understand that the Navy intends to perform shock trials on the CVN-79, the second ship in the class. I also am aware that Dr. Michael Gilmore, the Director of Operational Test & Evaluation, has complained that the Navy should not wait until the second ship of the class to perform shock trials. Could you describe why Dr. Gilmore does not agree with the Navy position, and could you also describe why the Navy is not persuaded by Dr. Gilmore's arguments?

Mr. STACKLEY. Subsequent to the March 18 hearing, the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) issued an Acquisition Decision Memorandum (ADM) directing Navy to execute a Full Ship Shock Trial (FSST) and Total Ship Survivability Test (T SST) on CVN 78 prior to initial operational deployment. The Navy is currently revising the CVN 78 Class program plan to comply with the ADM.

DDG-51 WITH AIR AND MISSILE DEFENSE RADAR

45. Senator HIRONO. Secretary Stackley, one of the lessons the Navy has had to periodically re-learn is that we shouldn't be making changes in the middle of a ship-building acquisition contract. Congress approved a 5-year multiyear procurement program to buy the Flight IIA version of the DDG-51 between fiscal year 2013 and fiscal year 2017. The Navy had wanted blanket authority to start buying a new version of the DDG-51 with a new radar system during the middle of the multiyear procurement program. That radar system is called the Air and Missile Defense Radar (AMDR) and the version of the DDG-51 with the AMDR would be referred to as a Flight III DDG-51. The language approving the fiscal year 2013 to fiscal year 2017 multiyear program indicated that Congress might be willing to approve an engineering change proposal for including the AMDR on the second DDG in fiscal year 2016, but that the Navy would have to demonstrate certain levels of maturity in the AMDR program and the DDG-51 design to include the AMDR before proceeding. Can you tell us why we should approve the Navy's proposal to include AMDR on the second DDG-51 in the fiscal year 16 budget request?

Mr. STACKLEY. The DDG-51 program has a long history producing three flights (I, II, IIA). Flight I produced the original baseline while Flight II introduced enhanced capability in Combat Systems and Electronic Warfare. Flight IIA constituted a more significant change to the ship by incorporation of an organic dual hangar/dual helicopter aviation facility, extended transom, zonal electrical power distribution, enhanced missile capacity, and reconfigured primary radar arrays. Flight III

will take a similar approach as Flight IIA by incrementally increasing capability. Flight IIA production was in the middle of the fiscal year 1998–2001 Multi-Year Procurement and the class was upgraded with a new radar, the AN/SPY-1D(V), and an improved combat management computing plant, AEGIS Baseline 7.1.

Ship system changes were successfully executed by Engineering Change Proposals (ECP) introduced via the existing systems engineering processes on both Flight II and IIA in support of the ongoing construction program. The Navy and prime contractor have significant experience underpinned with proven processes that have provided an effective, efficient and affordable upgrade to the class while managing risk. The alternative would be to start a new ship design and incorporate the same capabilities into a production line for ship construction.

AMDR, designated AN/SPY-6, will first be procured in fiscal year 2016 in conjunction with Flight III. AN/SPY-6 provides tremendous capability improvement in Integrated Air and Missile Defense that will address the emergent threat. AN/SPY-6 is progressing well through Engineering Manufacturing and Development that began in 2014. The program has met all major milestones, including successful completion of Hardware Critical Design Review (CDR) in December 2014, and is on track to complete System CDR in April 2015. The tactical software is well into development, and that software is already integrated with and running radar hardware. All of the combat system and ship interfaces for the radar have been defined and are under engineering configuration management control. The DDG-51 ship-builders are designing the ship changes required to host the radar, based on detailed radar design information already delivered. The small amount of residual risk associated with implementing this radar on an fiscal year 2016 Flight III justifies procurement of the radar as well as execution of the Flight III DDG-51 ECP during the fiscal year 2013–2017 multiyear procurement contract. Risk is also managed by introducing AN/SPY-6 through the proven AEGIS combat system in the well-established DDG-51 hull.

In summary, the radar hardware design is complete, and is currently integrated with tactical software. The program is on track to support a production decision for procurement of the fiscal year 2016 Flight III DDG-51. Introducing AN/SPY-6 on Flight III remains the lowest risk, fastest, and least expensive means to deliver this vitally needed capability to pace the expected threat.

46. Senator HIRONO. Secretary Stackley, why should we consider the program to modify the design of the DDG-51 during the middle of a multiyear program as low risk?

Mr. STACKLEY. Prior to Flight III, the DDG-51 program has produced three flights (I, II and IIA). Flight II introduced enhanced capability in Combat Systems and Electronic Warfare. Flight IIA constituted a more significant change to the ship by incorporation of an organic dual hangar/dual helicopter aviation facility, extended transom, zonal electrical power distribution, enhanced missile capacity, and reconfigured primary radar arrays. The combined scope and means for integrating the changes for Flight III is similar to the approach used in the Flight IIA upgrade.

Additionally, during Flight IIA production in the middle of the fiscal year 1998–2001 multi-year procurement (MYP), the class was significantly upgraded with a new radar, the AN/SPY-1D(V), and an improved combat management computing plant, AEGIS Baseline 7.1. The previous ship system changes were successfully executed by Engineering Change Proposals (ECPs) introduced via the existing systems engineering processes on both Flight II and IIA in support of the ongoing construction program. This methodology takes advantage of Navy and prime contractor experience with the proven processes while offering effective and efficient introduction of the desired configuration changes. It also provides the more affordable and effective approach toward producing this enhanced ship capability in lieu of starting a new ship design to incorporate the same capabilities into a new production line for ship construction.

AMDR, officially designated SPY-6, is to begin procurement in fiscal year 2016 as part of the Flight III DDG-51. Given the tremendous capability improvement that AMDR/SPY-6 provides in order to meet emergent air and ballistic missile threat requirements, the small amount of residual risk associated with implementing this radar on an fiscal year 2016 DDG-51 justifies procurement of the radar as well as execution of the Flight III DDG-51 ECP during the fiscal year 2013–2017 MYP contract. Introducing SPY-6 through the proven Aegis combat system in the well-established DDG-51 hull remains the lowest risk, fastest way to get this capability to the Fleet.

Since work on this current Engineering and Manufacturing Development phase began in January 2014, the AMDR program has met all major program milestones per plan, including successful completion of Hardware Critical Design Review (CDR)

in December 2014, and is on track to complete System CDR in April 2015. The actual tactical software that runs the radar is well into development, and that software is already integrated with and running radar hardware. All of the combat system and ship interfaces for the radar have been defined and are under engineering configuration management control. The DDG-51 shipbuilders are designing the ship changes required to host the radar, based on detailed radar design information already delivered.

In summary, the radar hardware design is complete, and is already integrated with initial tactical software. The program is on track, with schedule margin, to support a production decision for procurement of the fiscal year 2016 Flight III DDG-51. Introducing the AMDR/SPY-6 on the Flight III DDG-51 remains the lowest risk, fastest, and least expensive means to deliver this vitally needed capability to our Fleet.

CRUISER MODERNIZATION PROGRAM

47. Senator HIRONO. Admiral Mulloy, Congress and the Navy have debated the future of the cruisers in the fleet over the last 3 years. At the start of last year, the Navy wanted to put aside 11 cruisers to modernize, but Congress directed the Navy to maintain them as part of the fleet. Both the fiscal year 2015 National Defense Authorization Act and the Omnibus Appropriations Act carried language related to the modernizing cruisers. How does the Navy plan to execute the cruiser modernization plan?

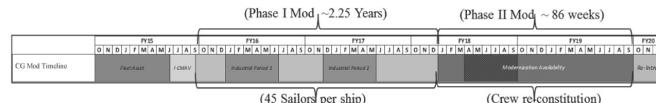
Admiral MULLOY. The Navy is executing the “2-4-6” plan for CGs 63–73 as directed by Congress. Within the guidelines of the fiscal year 2015 Consolidated and Further Continuing Appropriations Act, the Navy will induct no more than two ships per year for no more than four years, and have no more than six ships in a modernization period at any given time. In fiscal year 2015, the Navy is inducting the first two ships, the USS *Gettysburg* (CG 64) and USS *Cowpens* (CG 63) into modernization. The fiscal year 2016 President’s Budget request inducts the next two CGs, USS *Vicksburg* (CG 69) and USS *Chosin* (CG 65), into modernization in fiscal year 2016.

Using this “2-4-6” plan, the final cruiser retirements will occur between 2036 and 2039. In the meantime, the Navy will face far higher fleet operations and maintenance and personnel costs than anticipated. Under the Navy’s original PB2015 plan, the final CG retirement would have occurred in 2045, at a significantly reduced cost to the Navy, and would have relieved pressure on a shipbuilding account largely consumed in the 2030s with building *Ohio* replacement SSBNs and aircraft carriers. This is a more cost efficient plan. Accordingly, the Department of Defense will continue to work with Congress to implement the Navy’s cruiser modernization plan submitted with the PB2015 budget.

(Per “Report to Congress on the Annual Long-Range Plan for Construction of Naval vessels for fiscal year 2016” dated March 2015, page 11.)

48. Senator HIRONO. Admiral Mulloy, please provide details of the Navy’s cruiser modernization plan.

Admiral MULLOY. A notional timeline for the Navy’s cruiser modernization plan is provided below.



Induction Continuous Maintenance Availability (I-CMAV): Occurs prior to Phase I of modernization. This is notionally a 90 day long availability (depicted in yellow above) that places most equipment in preserved status and will essentially “seal the ship” in a safe and known condition prior to Phase I modernization. Ships inducted will be consolidated in Norfolk and San Diego. Following the I-CMAV, crew size on each ship inducted will be reduced to about 45 sailors with an Acquisition Professional Commanding Officer (CO) for the duration of Phase I (about 2.25 years as depicted by the line chart above). Responsibility for the ship will be transferred to the Naval Sea Systems Command (NAVSEA).

Phase I Modernization: Basic upkeep and maintenance of the ship for a 2.25 year period with interspersed industrial periods, mainly for hull, mechanical and electrical (HM&E) modernization. During the “grey” periods depicted above, the ships

will be monitored by government and contracted personnel via sensors installed during the I-CMAV. Topside maintenance will be performed as needed, but the ship will be sealed; no personnel allowed inside the skin of the ship except for periodic inspections. Crew members assigned (45 as noted above) will be involved in planning the industrial periods represented by the “orange” blocks in the figure above. When not engaged in activities relating to their assigned ship, they may be temporarily assigned to the Regional Maintenance Center or to schools as required.

One or two (ship dependent; based on previous work completed) 26 week industrial periods (orange blocks) will be scheduled to conduct HM&E modernization. The first period will consist mainly of topside modernization and targeted Combat Systems removal. The second period will be more intrusive and include significant HM&E modernization. Crew assigned to the ship (still 45) will oversee these periods and review tagouts, Work Authorization Forms and other documentation.

Phase II Modernization: Major Combat Systems modernization period with remaining HM&E work; approximately 86 weeks in length (represented in brown in the chart above). Includes a 35 week Dry-docking period (cross-hatched brown), combat systems upgrade to AEGIS Baseline 9A with SM-6 Standard Missile and Naval Integrated Fire Control—Counter Air (NIFC-CA) capability, and ends with Sea Trials. Crew will be re-constituted in 4 phases with 100 percent on board prior to Aegis Light Off (week 52).

Responsibility for the ship will return to the ship’s CO (and type commander) following re-crew. Details of command and control, responsibilities transferred, and timeline of transfer will be contained in an OPNAVINST and Memorandum of Agreement between NAVSEA and Navy Surface Forces (SURFOR).

Phase III Modernization: Period of reintroduction to the Fleet (depicted in green above) which will include inspections by the Board of Inspection and Survey (INSURV) and combat system ship qualification testing (CSSQT). This will notionally be a 90 day period. As a modernized CG is returned to the Fleet, an older CG (CGs 52–62) will be decommissioned. This program allows the Navy to maintain 11 CGs—one for each Carrier Strike Group—through 2034, when the first modernized CG from this program will decommission.

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2016 AND THE FUTURE YEARS DEFENSE
PROGRAM**

WEDNESDAY, MARCH 25, 2015

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVY AND MARINE CORPS AVIATION PROGRAMS

The subcommittee met, pursuant to notice, at 9:02 a.m. in room SR-222, Russell Senate Office Building, Senator Roger F. Wicker (chairman of the subcommittee) presiding.

Committee members present: Senators Wicker, Ayotte, Tillis, Hirono, and Kaine.

**OPENING STATEMENT OF SENATOR ROGER F. WICKER,
CHAIRMAN**

Senator WICKER. The meeting will come to order. Thank you very much.

We convene this morning to examine Navy and Marine Corps aviation programs.

I want to thank everyone for accommodating an earlier than usual start to our hearing. The President of Afghanistan, Dr. Ashraf Ghani, will address a joint session of Congress at 11 a.m. President Ghani took his oath of office last September, marking Afghanistan's first peaceful and democratic transition of power.

I view the situation now in Afghanistan as a success story. I am pleased that the administration announced that it will slow the withdrawal of troops during the remainder of 2015. These decisions should be made based on conditions on the ground, not political calculations.

We are grateful for our servicemembers and veterans who have served in Operation Enduring Freedom, and we pay tribute to the 2,215 brave Americans who made the ultimate sacrifice in Afghanistan.

This morning our subcommittee welcomes three distinguished witnesses: Vice Admiral Paul Grosklags, Principal Military Deputy for the Assistant Secretary of the Navy for Research, Development, and Acquisitions; Lieutenant General Jon M. Davis, Deputy Commandant for Marine Corps Aviation; and Rear Admiral Michael C. Manazir, Director of Air Warfare for the Department of the Navy.

Our subcommittee is grateful to you for your decades of service to our Nation.

Well-respected expert witnesses have testified before the Senate Armed Services Committee that our Nation faces the most diverse, complex, and potentially dangerous threats to national security in recent history. However, instead of strengthening our military and ensuring our men and women in uniform have comprehensive training and world-class equipment they need, sustained budget cuts and mindless sequestration are damaging our military's force structure, modernization, and readiness. The stakes are high during these challenging times.

For example, hard-earned gains in the Middle East are increasingly challenged by the extremists of the Islamic State. Vladimir Putin's belligerence continues to test NATO's resolve in Eastern Europe, and the Peoples Republic of China continues to expand and modernize its military, threatening to alter the balance of power in the Pacific.

Given these global threats, I hope our witnesses today will elaborate on the impact that sequestration would have on Navy and Marine Corps aviation programs, the Navy and Marine Corps' ability to execute our country's national security strategy, and the vitality of our aviation industrial base.

This morning our subcommittee will examine four key areas related to the Navy's aviation programs.

First, aircraft readiness. There are problems with the Navy's inventory of 600 legacy F/A-18C strike fighters. Half of the fleet is out-of-reporting status. This means that the aircraft are not available to train our aviators or execute combatant commander requests for aviation support. We face these challenges because of delays in the F-35 Joint Strike Fighter program, budget reductions that have caused an acute backlog in aircraft depot maintenance, and an extremely high OPTEMPO [operational tempo]. This situation has led the Navy to fly its newer F/A-18E and F Super Hornets at higher rates than expected, accelerating the consumption of their service lives.

We also hope to hear about the gap in fighter aircraft. Our subcommittee would like to learn more about gaps in the fighter fleet. The Chief of Naval Operations, Admiral Greenert, estimates that the Navy needs up to 36 new strike fighters to help mitigate a current shortfall of 104 strike fighters, with a potential peak shortfall of 134 aircraft in 2020. Although Congress has not yet received an fiscal year 2016 unfunded priority list from the Department of the Navy, I hope our witnesses today will be able to provide more details on unfunded requirements for multi-role fighter aircraft.

Third, we would like to know more about the Navy's plans for its next generation naval cargo aircraft. Admiral Greenert recently made the decision to propose the replacement of the aging COD [Carrier Onboard Delivery] aircraft, with the V-22 Osprey. I understand this plan involves shifting some planned procurement of V-22 aircraft from the Marine Corps to the Navy. We would appreciate the Navy providing this subcommittee with details and ramifications of this proposal, including the ability of the F-22 to fulfill COD mission requirements.

Fourth, I would like an update on the status of the Navy's UCCLASS manned aerial vehicle program. I understand that program requirements are still in the process of being finalized. Our subcommittee has a particular interest in learning why the Navy does not plan to support the continuation of the Navy unmanned combat air system demonstration program in the interim. This demonstration program could reduce risk in technology development for follow-on programs such as UCCLASS. We have already invested \$1.5 billion to develop and construct two cutting-edge aircraft. Over 85 percent of the projected service life remains on these two aircraft. So help us understand the Navy's reasons for ending this development program.

Turning to the Marine Corps aviation, our subcommittee is aware of the Marine Corps' issues with their legacy fighter fleet. Testing is underway in Yuma, AZ, and other locations on the F-35B Joint Strike Fighter. This summer, a significant milestone will occur with initial operational capability for the F-35B.

However, there are concerns about the warfighting capability of these initial aircraft. For example, the Department of Defense's Director of Operational Test and Evaluation, Dr. J. Michael Gilmore, observed in his annual report for 2014 that the annual software for these Marine Corps aircraft will be delivered with troubling capability shortfalls. Our subcommittee would like our witnesses to elaborate on whether the marine aviators flying the F-35B in hostile environments after declaration of IOC [initial operational capability] have the appropriate levels of safety, reliability, and combat effectiveness they need.

Finally, I would like an update on Navy and Marine Corps munitions. Earlier this month, Admiral Greenert and Commandant Dunford testified before the Senate Armed Services Committee that Navy and Marine Corps munition inventories may not be sufficient to support combatant commander requirements. This subcommittee needs to understand the nature of the shortfalls in air-to-air weapons, as well as air-to-surface munitions such as the joint standoff weapon and advanced anti-radiation guided missile. I would like to hear about the levels of risk associated with insufficient levels of these weapons which are absolutely vital to the execution of our current and near-term contingency operations.

Once again, I want to thank our witnesses for their service to our Nation and recognize the ranking member, Senator Hirono, for whatever opening remarks she might have.

STATEMENT OF SENATOR MAZIE HIRONO

Senator HIRONO. Thank you, Mr. Chairman.

I join the chair in thanking you for your service and, of course, for the wonderful work that all of our men and women are doing in Afghanistan and other parts of the world. Our thoughts and prayers go with those who are actively serving and also with their families who, of course, also serve and sacrifice every day.

The chair and I share many similar concerns, especially relating to gaps in our fighter fleet and concerns surrounding the F-35s.

So our witnesses this afternoon face huge challenges as you strive to balance the need to support ongoing operations and sustain readiness with the need to modernize and keep the techno-

logical edge so critical to military success. These challenges have been made particularly difficult by the spending caps imposed by the Budget Control Act, caps that were modestly relieved for fiscal year 2015 in the Bipartisan Budget Act that we enacted earlier this year. However, these caps are scheduled to resume full blast in fiscal year 2016 and beyond. These caps already seriously challenge our ability to meet our National security needs and have already forced the military departments to make painful tradeoffs. Unless modified for years after fiscal year 2015, these caps will threaten our long-term national security interests.

This year, I believe we have two pivotal situations in naval aviation. This is the year when, if the schedule works out as planned, the Marine Corps will be in a position to declare initial operating capability [IOC] for the F-35B, the short takeoff, vertical landing (STOVL). We need to hear how the testing is proceeding, something already mentioned by the chair, and how other parts of the program are supporting that IOC declaration later this year.

Second, the Navy is facing a major shortfall in its strike fighter inventory. The Navy responded to forecasts of a shortage of almost 200 aircraft several years ago by better managing the remaining life of the existing aircraft by redistributing aircraft within the force, designing a series of maintenance and rehabilitation measures, including a service life extension program, or a SLEP, for older aircraft, and buying new F-18 aircraft.

After several years of predicting significant improvements in the Navy's ability to support operating forces, including aircraft carrier squadrons and Marine Corps squadrons, with strike fighter aircraft, the Navy this year is predicting a major erosion in that ability. This year, the Navy estimates that their shortfall has risen from a level last year of roughly 30 aircraft to a level this year of more than 100 aircraft to as high as 134 aircraft. The committee received previous testimony from Navy witnesses and a shortfall of roughly 65 strike fighters was manageable.

We need to understand why there is an increased projection of a shortfall, what effect a shortfall of 134 aircraft means, and what actions the Navy will take to reduce or mitigate that shortfall.

So I will stop now and let us hear from the witnesses this morning. Thank you very much, Mr. Chairman.

Senator WICKER. Thank you, Senator Hirono.

I understand Vice Admiral Grosklags will make a statement representing the views of all three witnesses. Is that correct, Vice Admiral?

Admiral GROSKLAGS. Yes, sir, that is correct.

Senator WICKER. Proceed then. Thank you so much.

STATEMENT OF VADM PAUL A. GROSKLAGS, USN, PRINCIPAL MILITARY DEPUTY, ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITIONS

Admiral GROSKLAGS. Mr. Chairman, Ranking Member Hirono, distinguished members of the subcommittee, thank you for the opportunity to appear before you today to talk about our naval and Marine Corps aviation programs.

As you are aware, we have submitted a formal statement for the record, and I will give a single brief opening statement.

The United States is a maritime nation. We have global interests and global responsibilities. Our Navy and Marine Corps provide the continuously forward-deployed, persistent presence which ensures our Nation's global reach, global access, and ability to project power regardless of changing alliances, permissions, or circumstances on the ground. We move at will across the world's oceans, seas, and littorals, providing our Nation's leaders with off-shore options where it matters and when it matters.

The aviation component of our Marine Corps and Marine Corps team enables our sea-based and expeditionary naval forces to bring simultaneous influence over vast stretches of the maritime environment, across the shoreline, and deep inland. As such, it is critical that our aviation forces remain always ready, poised to engage at a moment's notice with the required capacity and capability to influence events and, if necessary, to fight and to win.

Last year, we saw significant advancements in many of our aviation programs such as the first P-8 deployment to the western Pacific, standup of a second special purpose MAGTF [Marine Air Ground Task Force] formed around the unique capabilities of the V-22 and the KC-130J. We saw initial qualification of the Joint Strike Fighter on board our aircraft carrier, and we had initial operational capability [IOC] with the MH-6 this year and its advanced precision kill weapons system.

This year, we look forward to a number of additional milestones, to include the initial operational capability [IOC] of the F-35B that the ranking member just referred to, initiation of sensor testing on our MQ-4C Triton unmanned ISR vehicle, first flight of the CH-53K for the Marine Corps by the end of this calendar year. Our first deployment of our E-2D began this month, and along with the Air Force, we have declared initial operational capability [IOC] for the AIM-120D, the most current version of that weapon, and we will declare initial operational capability for the AIM-9X block 2 this month.

For 2016, our naval aviation budget request is based on a number of central themes: fifth generation fighter attack capability; netted persistent multi-role intelligence, surveillance, reconnaissance; critical supporting capabilities in electronic attack, maritime patrol, and vertical lift; advanced strike weapons programs; readiness recovery; and targeted modernization of the force to ensure our continued relevance and sustainability.

Now, as this subcommittee is well aware and as you alluded to in your opening remarks, Mr. Chairman, our security interests face an increasing array of threats and demands. However, our budget position grows ever more challenging. We will continue to prioritize the readiness of the forces currently forward deployed over all of other investments. However, we must also recognize that those Navy and Marine Corps forces that this Nation deploys to meet the future threat will be dependent upon the equipment and the readiness modernization programs of today.

Across the department, our strategies for the development, procurement, and sustainment of both current and future systems are critically dependent upon stable and predictable funding at a level consistent with the President's budget 2016 request. We believe the alternative has been made clear by our Secretary and by the serv-

ice chiefs. It will be a smaller force, a force less forward deployed, a force slower to respond to a crisis, and a force which, when it does respond, will be less capable and more vulnerable.

Mr. Chairman, we request your leadership and the support of this subcommittee to provide the resources that enable your Navy and Marine Corps team to be our Nation's first responders.

Again, thank you for the opportunity to appear before you today to discuss our programs, and we look forward to your questions.

[The prepared joint statement of Admiral Grosklags, Admiral Manazir, and General Davis follows:]

PREPARED JOINT STATEMENT BY VICE ADMIRAL GROSKLAGS, REAR ADMIRAL MICHAEL C. MANAZIR, AND LIEUTENANT GENERAL JON DAVIS

INTRODUCTION

Mr. Chairman, Senator Hirono, and distinguished members of the Subcommittee, we thank you for the opportunity to appear before you today to discuss the Department of the Navy's (DON) Aviation programs. Our testimony will provide background and rationale for the Department's fiscal year 2016 budget request for aviation programs aligning to our strategic priorities and budgetary goals.

The United States is a maritime nation with global responsibilities. Our Navy and Marine Corps' persistent presence and multi-mission capability represent U.S. power projection across the global commons. They move at will across the world's oceans, seas and littorals, and they extend the effects of the sea-base and expeditionary basing deep inland. Naval Aviation provides our nation's leaders with "off-shore options" where it matters, when it matters. We enable global reach and access, regardless of changing circumstances, and will continue to be the nation's pre-eminent option for employing deterrence through global presence, sea control, mission flexibility and when necessary, interdiction. We are an agile strike and amphibious power projection force in readiness, and such agility requires that the aviation arm of our naval strike and expeditionary forces remain strong.

There are several central themes to our 2016 Naval Aviation Budget plan: 5th generation fighter/attack capability; netted persistent multi-role intelligence, surveillance, reconnaissance and targeting; supporting capabilities such as electronic attack, maritime patrol, and vertical lift; advanced strike weapons programs; readiness recovery; and targeted modernization of the force for relevance and sustainability.

First, we are acquiring F-35 5th generation fighter/attack aircraft while maintaining sufficient tactical aviation (TACAIR) inventory capacity. Our plan will integrate 5th generation technologies into the carrier air wing and expeditionary forces while maintaining and modernizing the capability of the current TACAIR fleet. The F-35B and F-35C will replace Marine Corps F/A-18 and AV-8B aircraft significantly increasing capabilities across the range of military operations of Marine sea and land-based MAGTFs. The F-35C, F/A-18E/F, and EA-18G provide complementary capabilities that enhance the versatility, lethality, survivability, and readiness of our air wings. F/A-18A-F and AV-8B aircraft will continue to receive capability enhancements to sustain their lethality well into the next decade. Future avionics upgrades will enable network-centric operations for integrated fire control, situational awareness and transfer of data to command-and-control nodes.

To meet the demand for persistent, multi-role intelligence, surveillance, and reconnaissance (ISR) capability, the Navy and Marine Corps are building a balanced portfolio of manned and unmanned aircraft focused on missions in the maritime environment. The Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) system will provide a persistent aircraft carrier-based ISR&T and strike capability as an integral part of carrier air-wing operations no later than the early part of the next decade. MQ-4C Triton will provide persistent land-based maritime ISR and complement our P-8 Multi-Mission Maritime Aircraft (MMA); MQ-8 Fire Scout will provide ISR support to our Frigates and other suitably-equipped air-capable ships; and smaller unmanned systems such as the RQ-21A Small Tactical Unmanned Aircraft System (STUAS) and RQ-7B Marine Corps Tactical UAS (MCTUAS) will provide the shorter duration, line-of-sight reconnaissance capability integral at the unit level.

The Fiscal Year 2016 Budget request enables Naval Aviation to continue recapitalization of our aging fleets of airborne early warning, maritime patrol, and vertical

lift platforms. The Department is recapitalizing our fleet of E-2C airborne early warning aircraft with the E-2D, maritime patrol and reconnaissance with the P-8A, airborne electronic attack with the EA-18G, and Carrier Onboard Delivery (COD) with the V-22. E-2D integrates a new electronically-scanned radar that provides a two-generation leap in technology with the capability to detect and track existing and emerging air-to-air and cruise missile threats in support of Integrated Air and Missile Defense (IAMD). P-8A combines the proven reliability of the commercial 737 airframe with avionics that enable integration of modern sensors and robust communications. We have deployed our third P-8A squadron and are on a path to replace the P-3C by the end of the decade. Electronic attack capabilities, both carrier-based and expeditionary, continue to mature with the fielding of EA-18G squadrons while we continue development of the Next Generation Jammer (NGJ) to replace the legacy ALQ-99 Tactical Jamming System. Finally, the Department is planning to recapitalize its fleet of C-2A COD aircraft with an extended range variant of the V-22. The decision closes a capacity gap in the COD capability within an existing program of record.

The Navy and Marine Corps are participating in Joint Future Vertical Lift efforts to identify leverage points for future rotorcraft investment. In fiscal year 2016 the Department continues to modernize vertical lift capability and capacity with procurement of MH-60R, AH-1Z, UH-1Y, and MV-22B, and the continued development of the CH-53K and VH-92A (Presidential Helicopter replacement). The Special Purpose Marine Air-Ground Task Force-Crisis Response (SPMAGTF-CR), designed to support U.S. and partner security interests throughout the CENTCOM, EUCOM and AFRICOM Areas of Responsibility (AOR), leverages these vertical lift investments. The unparalleled speed and range of the MV-22B, together with the KC-130J and joint tanker assets provides both SPMAGTF-CR with the operational reach to respond to crises throughout any AOR.

Within our Fiscal Year 2016 Budget request the Department continues investment in advanced strike weapons programs. These include Air Intercept Missiles (AIM-9X/BLK II and AIM-120D); Small Diameter Bomb II (SDB II); Tactical Tomahawk Cruise Missiles (TACTOM/BLK IV); the Long-Range Anti-Ship Missile (LRASM); the Advanced Anti-Radiation Guided Missile (AARGM); the Joint Air-to-ground Missile (JAGM); and the Advanced Precision Kill Weapon System (APKWS II). These capabilities enable our Navy and Marine Corps warfighters to deter and dominate potential adversaries in any environment.

TACTICAL AVIATION

F-35B/F-35C Lightning II:

The F-35 Joint Strike Fighter (JSF) will form the backbone of U.S. air combat superiority for decades to come. Delivering this transformational capability into front line forces as soon as possible remains a top priority. JSF will replace legacy tactical fighter fleets of the Navy and Marine Corps with a dominant, multirole, fifth-generation aircraft, capable of projecting U.S. power and deterring potential adversaries. The Fiscal Year 2016 President's Budget requests \$1.0 billion RDT&E,N and \$3.1 billion APN.

The F-35 program is executing well across the entire spectrum of acquisition, to include development and design, flight test, production, fielding and base stand-up, sustainment of fielded aircraft, and stand up of a global sustainment enterprise. To date, all variants of F-35 have flown close to 28,000 hours close to 11,000 hours for the F-35B and more than 3,000 for the F-35C. Our overall assessment is that steady progress is being made on all aspects of the program. However, F-35 does continue to have its risks, inclusive of software development and integration. However, discipline instilled several years ago in the way software is developed, lab tested, flight tested, measured and controlled has resulted in improved and more predictable outcomes.

The program is in the final stages of flight test for Block 2B software; Block 3i software is anticipated to deliver all planned capabilities; and Block 3F, which has the most software development risk driven by data fusion, is improving. Data fusion enables the aircraft to integrate onboard capabilities with information from multiple other sources, such as non-F-35 aircraft, satellites, and ground stations, to provide the pilot complete and accurate battlespace awareness. This multi-platform fusion is the most complex remaining developmental activity and is being closely monitored. Block 3F complexity and technical challenges, combined with a delay in the start of 3F flight testing may result in delivery up to 4-6 months late. Overall, the Block 2B configuration, which will support the Marine Corps' F-35B Initial Operational Capability (IOC) will deliver during the Summer of 2015 and is tracking to plan; Block 3i, the same capability as Block 2B but hosted on new and improved

computers, is expected to be ready by the end of calendar year 2015, and Block 3F capability will enable Navy to IOC the F-35C variant in 2018 along with the Marine Corps its first F-35C in 2020.

The program has delivered 124 aircraft to test, operational, and training sites, with the production line running approximately two-months behind schedule. Due to government/industry manufacturing management initiatives, production deliveries are improving and the current delays do not pose any long-term schedule or program delivery risks.

Affordability remains a top priority. We have made it clear to the program management team and the F-35 industrial base that the JSF must finish development within the time and money allocated; continue to drive cost out of aircraft production; and reduce life-cycle costs. To that end the program has engaged in a multi-pronged approach to reduce costs across production, operations, and support. The government/industry team is reducing aircraft production costs through “blueprint for affordability” initiatives and reducing F135 engine costs via ongoing engine “war on cost” strategies. These efforts include up-front contractor investment on cost reduction initiatives mutually agreed upon by the government and contractor team. This arrangement motivates the contractors to accrue savings as quickly as possible in order to recoup their investment, and benefits the government by realizing cost savings at the time of contract award. The goal is to reduce the flyaway cost of the U.S. Air Force (USAF) F-35A to between \$80 and \$85 million dollars by 2019, which is anticipated to commensurately decrease the cost to the Marine Corps F-35B and Navy F-35C variants. The program has set a goal of decreasing overall operating and support life-cycle cost by 30 percent.

F/A-18 Overview

The F/A-18 Hornet continues to meet readiness and operational commitments. There are 26 Navy Super Hornet strike fighter squadrons and a total inventory of 521 F/A-18E/Fs; deliveries and squadron transitions will continue through 2018. There are nine Navy and 11 Marine Corps F/A-18 A-D active strike fighter squadrons and a total inventory of 614 Hornets. Super Hornets and F/A-18A-D Hornets have conducted more than 214,000 combat missions since September 11, 2001.

F/A-18 A/B/C/D Hornet

The Fiscal Year 2016 President's Budget requests \$371.2 million in APN to implement aircraft commonality programs, maintain relevant capability, improve reliability, and ensure structural safety of the inventory of 614 F/A-18 A-D Hornets. \$148.2 million is for the Service Life Extension Program (SLEP).

The F/A-18A-D was designed for, and has achieved, a service life of 6,000 flight hours. These aircraft have performed as expected through their design life. Service life management of this aircraft is intended to extend this platform beyond its designed 6,000 flight hours. Through detailed analysis, inspections, and structural repairs, as required, the DON has been successful in achieving 8,000 flight hours for many aircraft and is pursuing a strategy to go as high as 10,000 flight hours on select aircraft. Continued investment in SLEP, the High Flight Hour (HFH) inspection program, Program Related Engineering, and Program Related Logistics is critical for our flight hour extension strategy.

In order to maintain warfighting relevancy in a changing threat environment, we will continue to procure and install advanced systems such as the Joint Helmet-Mounted Cueing System (JHMCS), High Order Language Mission Computers, ALR-67v3, ALQ-214v5, Multifunctional Information Distribution System (MIDS), APG-73 radar enhancements, Advanced Targeting Forward looking Infrared (ATFLIR) upgrades, and LITENING for the Marine Corps on selected F/A-18A-D aircraft.

F/A-18 E/F Super-Hornet

The F/A-18E/F will be a mainstay of Navy's aviation carrier air wing strike fighter force through 2035. The Fiscal Year 2016 President's Budget requests \$507.1 million in APN to implement aircraft commonality programs, maintain relevant capabilities, improve reliability, and ensure structural safety of the Super-Hornet fleet; and \$153 million RDT&E,N to support the Flight Plan spiral capability development, development of Advanced Electronic Attack and Counter-Electronic Attack, and F/A-18E/F Service Life Assessment Program (SLAP).

The F/A-18E/F significantly improves the survivability and strike capability of the carrier air wing. The Super-Hornet provides increased combat radius and endurance, and a twenty-five percent increase in weapons payload over F/A-18A-D Hornets. The production program continues to deliver on-cost and on-schedule.

The Super-Hornet uses an incremental approach to incorporate new technologies and capabilities, to include Digital Communication System Radio, MIDS—Joint Tactical Radio System, JHMCS, ATFLIR with shared real-time video, Accurate Naviga-

tion, Digital Memory Device, Distributed Targeting System, Infrared Search and Track and continued advancement of the APG-79 Active Electronically Scanned Array (AESA) Radar.

\$19.7 million of the 2016 RDT&E,N supports the F/A-18E/F SLAP requirement. The F/A-18 E/F fleet, on average, has flown approximately 36 percent of the design life of 6,000 flight hours. The remaining design service-life will not be adequate to meet long-term operational commitments through 2035. In 2008 the Navy commenced a three phase F/A-18E/F SLAP to analyze actual usage versus structural test results and determine the feasibility of extending F/A-18E/F service life from 6,000 to 9,000 flight hours via a follow-on SLEP. The F/A-18E/F SLAP will identify the necessary inspections and modifications required to achieve 9,000 flight hours and increase total arrested landings and catapults beyond currently defined life limits. This extension is assessed as low risk. The Service Life Management Plan philosophy has been applied to the F/A-18E/F fleet at an earlier point in its lifecycle than the F/A-18A-D. This will facilitate optimization of Fatigue Life Expended, flight hours, and total landings, thereby better aligning aircraft service life with fleet requirements.

AV-8B Harrier

Since the beginning of the war on terror, the AV-8B Harrier has been a critical part of the strike fighter inventory for the Joint force. This aircraft has flown more than 54,000 hours in combat since 2003 with zero losses from the enemy in the air but six losses on the ground when the enemy broke through our forces at Bastion air base in 2012. The Fiscal Year 2016 President's Budget requests \$83.3 million in APN funds to continue the incorporation of Obsolescence Replacement / Readiness Management Plan systems, electrical and structural changes, inventory sustainment and upgrade efforts to offset obsolescence and attrition, LITENING Pod upgrades, and F402-RR-408 engine safety and operational changes.

The Fiscal Year 2016 President's Budget requests \$39.9 million in RDT&E,N funds to continue Design, Development, Integration and Test of various platform improvements, to include Engine Life Management Program, Escape Systems, Joint Mission Planning System updates, Link 16 Digital Interoperability integration, Operational Flight Program (OFP) block upgrades to various mission and communication systems, navigation equipment, weapons carriage, countermeasures, and the Obsolescence Replacement / Readiness Management Plan.

The AV-8B continues to deploy in support of operational contingencies. Each Marine Expeditionary Unit (MEU) deploys with embarked AV-8Bs. The AV-8B, equipped with LITENING targeting pods and a video downlink to ROVER ground stations, precision strike weapons, Intrepid Tiger II EW pods and beyond visual range air-to-air radar guided missiles, continues to be a proven, invaluable asset for the Marine Air Ground Task Force (MAGTF) and joint commander across the spectrum of operations. One squadron has flown more than 3,400 hours of strike sorties against ISIS with an average combat radius of 900 miles. Digital Improved Triple Ejector Racks have allowed us to load up to 6 precision guided munitions per aircraft, with tanks, guns, and Litening Pods exponentially increasing the combat viability of this platform. In Fiscal Year 2016 the Airborne Variable Message Format terminals will be installed in AV-8B to replace the current digital-aided close air support (CAS) technology. The program will continue development of the H6.2 Operational Flight Program to integrate Federal Aviation Administration compliant Navigation Performance/Area Navigation (RNP/RNAV) capability, an update to the LITENING Common OFP to implement improvements to moving target tracking, and correct additional software deficiencies identified through combat operations. The program will also work on the H7.0 OFP which will integrate Link 16 functionality. As an out-of-production aircraft, the AV-8B program will continue its focus on sustainment efforts to mitigate significant inventory shortfalls, maintain airframe integrity, achieve full Fatigue Life Expended, and address reliability and obsolescence issues of avionics and subsystems.

Operations ODYSSEY DAWN, ENDURING FREEDOM, and today's Operation FREEDOM SENTINEL confirm the expeditionary advantages of Short Take-Off and Vertical landing (STOVL) capabilities. Placing the Harrier as the closest multi-role fixed-wing asset to the battlefield greatly reduces transit times to the battlefield and enables persistent CAS without strategic tanking assets. Airframe sustainment initiatives, capability upgrades, and obsolescence mitigation is essential and must be funded to ensure the AV-8B remains lethal and relevant.

FA-XX

The Department is preparing to conduct an analysis of alternatives (AoA) to address the anticipated retirement of the F/A-18E/F and EA-18G aircraft beginning

in the mid 2020 timeframe. The FA-XX AoA will consider the widest possible range of materiel concepts while balancing capability, cost, schedule, and supportability considerations. It will assess manned, unmanned, and optionally manned approaches to fulfill predicted 2030+ mission requirements. Analysis will consider baseline programs of record (current platforms), evolutionary or incremental upgrades to baseline programs (including derivative platforms), and new development systems or aircraft to meet identified gaps in required capability. The Fiscal Year 2016 budget requests \$5.0 million in RDT&E,N to conduct this AoA.

Strike Fighter Inventory Management

The Department remains challenged with end of life planning for F/A-18A-D and AV-8B aircraft that reach the end of their service life before replacement aircraft (F-35B/C) can be fully delivered into service. In the fiscal year 2016 budget request the Department was forced to cut 16 F-35Cs from the budget (fiscal year 2016–2020), delaying the stand-up of the first Marine Corps F-35C squadron by one year and delaying subsequent F-35C squadron transitions by two years each. Strike Fighter Inventory Management risk increases with the fiscal year 2016 budget request, further increasing the gap between supply and the Department's Master Aviation Plan demand.

The near term inventory challenge is due to a combination of reduced Strike Fighter procurement, higher than planned TACAIR utilization rates, and F/A-18A-D and AV-8B depot facility production falling short of the 2013 and 2014 required output. Aggressive efforts across the Department were instituted in 2014 to improve depot throughput and return more aircraft back to the Fleet. Aviation depots are expected to improve productivity through 2017, and fully recover the backlog of F/A-18A-D by 2019 and Harrier by 2016; at which time the focus will shift towards F/A-18E/F service life extension. The Marines ran an Independent Readiness Review of their AV-8B program to recover to a T-2.0 readiness level within their AV-8B fleet, meet their operational requirements and ensure they had an adequate bridge to the F-35. By following the plan, the AV-8B fleet should be in the green in 17 months.

The Navy and USMC strike-fighter force continues to meet their operational commitments. However, we anticipate the inventory pressure to remain relatively constant through fiscal year 2016 as we experience peak depot inductions of F/A-18A-D aircraft reaching 8,000 hours and entering extensive High Flight Hour (HFH) service life extension inspections, repairs and modifications.

Airborne Electronic Attack (AEA) / EA-18G Growler

The Fiscal Year 2016 President's Budget request includes \$108.5 million in APN to implement aircraft commonality programs, maintain relevant capabilities, improve reliability, and ensure structural safety of the Growler fleet; \$56.9 million in RDT&E,N for Flight Plan spiral capability development, design and integration of Jamming Techniques Optimization improvements, evolutionary software development and related testing; and \$398.8 million RDT&E,N for NGJ Increment 1 and \$13.0 million RDT&E,N for NGJ Increment 2.

In 2009, the Navy began the transition from EA-6Bs to EA-18Gs. The EA-18G is a critical enabler of the Joint force, bringing fully netted capabilities that provide electromagnetic spectrum dominance in an electromagnetic maneuver warfare environment. The first EA-18G squadron deployed to Iraq in an expeditionary role in November 2010 in support of Operation NEW DAWN, and subsequently redeployed to Italy on short notice in March 2011 in support of Operations ODYSSEY DAWN and UNIFIED PROTECTOR. The first carrier-based EA-18G squadron deployed in May 2011. Three active component Navy expeditionary squadrons, nine of ten carrier based squadrons, and one reserve squadron have completed, or are in, transition to the EA-18G.

The 10 carrier based EA-18G squadrons will fulfill Navy requirements for airborne electronic attack; six expeditionary EA-18G squadrons will provide the joint, high-intensity AEA capability required by the Joint Forces Commander, which was previously fulfilled by the Navy and Marine Corps EA-6B. The Navy will be divested of EA-6Bs by 2015; the Marine Corps by 2019 leaving the E/A-18G as the only viable AEA platform in the DoD inventory. The inventory objective is 153 EA-18G aircraft. Since their initial deployment, Growlers have flown more than 2,300 combat missions, have expended approximately six percent of the 7,500 flight hour life per aircraft, and are meeting all operational commitments.

Next Generation Jammer (NGJ)

NGJ is a new electronic warfare capability that will replace the 42-year old ALQ-99, currently the only Navy and Joint airborne Tactical Jamming System pod. The ALQ-99 has limited capability to counter tactically and technically advanced

threats, is increasingly difficult and costly to maintain, and has a vanishing industrial supplier base. The Navy and Department of Defense (DoD) require NGJ to meet current and emerging EW threats. NGJ will have the necessary power and digital techniques to counter increasingly advanced and sophisticated adversary electronic warfare search, surveillance, and targeting-radars and communications systems. NGJ will be DoD's only comprehensive tactical AEA capability—supporting all Services and joint/coalition partners, and will be implemented in three increments: Mid-Band (Increment 1), Low-Band (Increment 2), and High-Band (Increment 3). NGJ is designed to provide improved capability in support of joint and coalition air, land, and sea tactical strike missions and is critical to the Navy's vision for the future of strike warfare. Fiscal year 2016 funding is vital to maintain schedule, allowing the program to complete Technology Maturation and Risk Reduction (TMR) and transition into the Engineering and Management Development (EMD) phase. Initial concept studies and formal program stand-up will begin in fiscal year 2016 for Increment 2.

Airborne Electronic Attack (AEA) / EA-6B Prowler

The Fiscal Year 2016 President's Budget request includes \$15.5 million in RDT&E,N for Electronic Warfare (EW) Counter Response, \$2.8 million RDT&E,N for MAGTF EW, \$23.2 million in APN for Airborne Electronic Attack (AEA) systems, \$9.8 million in APN for all EA-6B series aircraft, and \$7.7 million APN for MAGTF EW.

Currently, there are 37 EA-6Bs in the Navy and Marine Corps, which are distributed to three Marine Corps and one Navy operational squadron, one Navy flight test squadron, and one Marine Corps training squadron. The total includes five Navy ICAP II aircraft and 32 ICAP III aircraft. All ICAP III EA-6Bs are operated by the Marine Corps. Final retirement of the EA-6B from the DON inventory will be in 2019.

Marine aviation is on a path toward a distributed AEA 'system of systems' that is a critical element in achieving the MAGTF EW vision: A composite of manned and unmanned surface, air, and space assets on a fully collaborative network providing the MAGTF commander control of the electromagnetic spectrum when and where desired. Included in this plan are the ALQ-231 Intrepid Tiger II communications jammer, UAS EW payloads, a Software Reprogrammable Payload and an EW Services Architecture to facilitate collaborative networked EW Battle Management.

Intrepid Tiger II development and procurement is in response to Marine Corps requirements for increased precision EW capability and capacity across the MAGTF and provides EW capability directly to tactical commanders without reliance upon the limited availability of the low density/high demand EA-6B Prowler. Intrepid Tiger II is currently carried on AV-8B and F/A-18 A++/C/D aircraft, has successfully completed nine deployments, and is currently deployed with both the 11th and 24th MEUs. Integration on Marine Corps rotary-wing aircraft is scheduled to be completed by the fourth quarter of fiscal year 2015. Development of an Intrepid Tiger II counter-radar capability for the penetrating jammer mission will begin in fiscal year 2016.

E-2D Advanced Hawkeye (AHE)

The Fiscal Year 2016 President's Budget requests \$272.1 million in RDT&E,N for continuation of added capabilities, to include In-Flight Air Refueling, Tactical Targeting Network Technology (TTNT), Secret Internet Protocol Router chat, Advanced Mid-Term Interoperability Improvement Program, Multifunctional Information Distribution System/Joint Tactical Radio System TTNT, Counter Electronic Attack, Sensor Netting, and Data Fusion. In the third year of a 26 aircraft Multi-Year Procurement (MYP) contract covering fiscal years 2014–2018, the budget requests \$1,053 million in APN for five Full Rate Production (FRP) Lot 4 aircraft , Advance Procurement (AP) for fiscal year 2017 FRP Lot 5 aircraft; and Economic Ordering Quantity funding for the MYP for fiscal year 2018.

The E-2D AHE is the Navy's carrier-based Airborne Early Warning and Battle Management Command and Control system. The E-2D AHE provides Theater Air and Missile Defense and is capable of synthesizing information from multiple on-board and off-board sensors, making complex tactical decisions and then disseminating actionable information to Joint Forces in a distributed, open-architecture environment. E-2D is also a cornerstone of the Naval Integrated Fire Control—Counter Air (NIFCA-CA) capability.

Utilizing the newly developed AN/APY-9 Mechanical/Electronic Scan Array radar and the Cooperative Engagement Capability (CEC) system, the E-2D AHE works in concert with tactical aircraft and surface-combatants equipped with the Aegis

combat system to detect, track and defeat air and cruise missile threats at extended ranges.

The first Fleet E-2D squadron (VAW-125) was designated “safe for flight” in January 2014. IOC was achieved in October 2014.

ASSAULT SUPPORT AIRCRAFT

MV-22

The Fiscal Year 2016 President’s Budget requests \$87.9 million in RDT&E,N for continued product improvements, including engineering development of a Navy variant of the MV-22; and \$1.48 billion in APN for procurement and delivery of 19 MV-22s (Lot 20). Fiscal year 2016 will be the fourth year of the 2nd V-22 MYP contract covering fiscal years 2013–2017. The funds requested in the fiscal year 2016 President’s Budget fully fund Lot 20 and procure long-lead items for fiscal year 2017 Lot 21 MV-22 aircraft. The APN request includes \$126.1 million to support Operations and Safety Improvement Programs (OSIPs), including Correction of Deficiencies and readiness improvements. The fiscal year 2016 request includes funding starting in fiscal year 2018 to procure a Navy variant in support of the Carrier Onboard Delivery mission.

MV-22 Osprey vertical flight capabilities, coupled with the speed, range, endurance of fixed-wing transports, are enabling effective execution of current missions that were previously unachievable. In 2014, a second Marine Corps SPMAGTF-CR was stood up in CENTCOM and the twelfth and final MV-22 for HMX-1 “Greenside” logistics and passenger transport was delivered for support of the Presidential transport mission. As the V-22 fleet approaches the 300,000 flight hour milestone it has proven to be the safest Marine Corps rotorcraft.

The second MYP, which began in fiscal year 2013, will procure at least 93 MV-22s over five years and results in savings of approximately \$1 billion when compared to single year procurements. The stability of the MYP supports the Marine Corps’ retirement of legacy aircraft, benefits the supplier base and facilitates cost reductions on the part of both the prime contractor and sub-tier suppliers.

Due to extremely high demand for MV-22 capability from the Combatant Commanders, and a resultant high operational tempo in 2014, the mission capability rates leveled-off and did not continue the year over year improvements seen since 2010. This was primarily due to our inability to train enlisted maintainers in the numbers and qualifications standard we need to sustain such a high demand signal. Right now we have 13 Full Operational Capability squadrons, with two in build, and are executing to an overall 15 squadron demand signal. We are shifting resources and modifying standup, transition, and training plans, but the demand for the capabilities this aircraft brings to the COCOMs is creating growing pains. While we are confident these issues will be overcome, there has been an impact on our readiness rates. Despite a readiness rate decrement, the cost per flight hour has continued to decrease, with a total reduction of nearly 28 percent since 2010. Fiscal year 2016 OSIP provides a necessary and stable source of crucial modification funding as the Ospreys work to improve readiness and continue to reduce operating cost.

Concurrent with our readiness and support initiatives, we are adding capabilities to the MV-22 that will make it even more valuable to the COCOMs. First, we are expanding the number of aerial refueling platforms that can refuel an MV-22, increasing the range of available options to capitalize on its long-range capabilities. We are also developing a mission kit to allow the MV-22 to deliver fuel to other airborne platforms. We see this as a critical enabler for both shore and sea-based operations. We plan to deliver this capability by the Summer of 2017 concurrent with the first Western Pacific deployment of the F-35B. We are also looking at options that will enable the delivery of precision-guided munitions from the MV-22, which will enhance its ability to operate autonomously and increase the lethality of our force. Finally, an important capability that is a priority for entire aviation force is Digital Interoperability (DI). We are testing and deploying the initial configuration of an onboard suite of electronics that will allow the embarked troop commander to possess unprecedented situational awareness via real time transmission of full motion video and other data generated by multiple air and ground platforms throughout the battlespace. This DI suite will also be able to collect, in real-time, threat data gathered by existing aircraft survivability equipment and off board data to accompanying attack platforms, thereby shortening the kill chain against ground and air based threats.

In ongoing operations in the Middle East, the MV-22 has become the Tactical Recovery of Aircraft and Personnel (TRAP) platform of choice to rescue downed aircrew in hostile territory. Currently, Marines are on alert in Central Command to recover American and Coalition aircrew executing strike operations. The speed, range, and

aerial refueling capability have allowed the Osprey's to remain in strategic locations throughout the area poised for rescue operations. With an unrefueled mission radius of 423 nautical miles, the Osprey can reach greater distances around the battlefield to increase the likelihood of recovering isolated personnel as the speed and altitude envelopes provide better survivability for the TRAP force and recovered aircrew.

CH-53K Heavy Lift Replacement Program

The Fiscal Year 2016 President's Budget requests \$632.1 million RDT&E,N to continue the EMD phase of the CH-53K program. Since entering into developmental test in December 2013 the Ground Test Vehicle (GTV) has completed bare head light-off and shakedown light-off has commenced. Over the last year, the GTV has accumulated over 180 test hours. The first flight vehicle, Engineering Development Model (EDM) 1, has completed its bare head light-off and initial bladed ground runs. The program is currently on schedule to execute its first flight by the end of 2015. During Fiscal Year 2016, the program will continue to execute developmental test flights, deliver the final EDM, and continue assembly of System Demonstration Test Article aircraft, which will be production representative aircraft utilized for Operational Test.

The CH-53K will provide land and sea based heavy-lift capabilities not resident in any of today's platforms and contribute directly to the increased agility, lethality, and presence of joint task forces and MAGTFs. The CH-53K will transport 27,000 pounds of external cargo out to a range of 110 nautical miles, nearly tripling the CH-53E's lift capability under similar environmental conditions, while fitting into the same shipboard footprint. The CH-53K will also provide unparalleled lift capability under high-altitude and hot weather conditions, greatly expanding the commander's operational reach.

Compared to the CH-53E, maintenance and reliability enhancements of the CH-53K will improve aircraft availability and ensure cost effective operations. Additionally, survivability and force protection enhancements will dramatically increase protection for both aircrew and passengers. Expeditionary heavy-lift capabilities will continue to be critical to successful land and sea-based operations in future anti-access, area-denial environments, enabling sea-basing and the joint operating concepts of force application and focused logistics.

Over the past 13 years, the CH-53 community accumulated over 95,000 combat flight hours. During this period, we suffered ten aircraft losses, nine in combat and one in training. As our CH-53E community approaches 30-years of service, these sustained and unprecedented operational demands have prematurely aged our heavy lift assault support aircraft, making it ever more challenging to maintain and underscoring the importance of its replacement, the CH-53K King Stallion. To keep the H-53E viable until the King Stallion enters service, the Fiscal Year 2016 President's Budget requests \$46.9 million in APN for both near and mid-term enhancements. For both the USN MH-53E and USMC CH-53E helicopters these modifications include Condition Based Maintenance software upgrades, Kapton wiring replacement installations, and improved Engine Nacelles. The Fiscal Year 2016 budget request includes non-recurring engineering for upgrades to the MH-53E's antiquated cockpit. These critical safety and avionics upgrades will address obsolescence issues within the cockpit and increase overall situational awareness and mission effectiveness by improving minefield navigation displays, adding Area Navigation (RNAV) capability, and providing moving map and hover displays. Additionally, non-recurring engineering and kit procurements for the Embedded Global Positioning System/Inertial Navigation System (EGI) will allow the MH-53E to utilize the full capability of the APX-123 transponder. The Marine Corps' CH-53E fleet is continuing with the T-64 Engine Reliability Improvement Program, Critical Survivability Upgrade (CSU), Satellite Communications (SATCOM) kit installations, and Smart Multi-Function Color Display (SMFCD) procurements and installations.

ATTACK AND UTILITY AIRCRAFT

UH-1Y // AH-1Z

Marine Corps Cobra and Huey attack and utility aircraft have been critical for the success of the Marines in harm's way and over the past 10 years, these aircraft have flown over 196,000 hours in combat. The Fiscal Year 2016 President's Budget requests \$27.2 million in RDT&E,N for continued product improvements; and \$856.2 million in APN for 28 H-1 upgrade aircraft: 12 UH-1Y and 16 AH-1Z. The program is a key modernization effort designed to resolve existing safety deficiencies and enhance operational effectiveness of the H-1 fleet. The 85 percent commonality between the UH-1Y and AH-1Z will significantly reduce life-cycle costs and the logistical footprint, while increasing the maintainability and deployability of both

aircraft. The program will provide the Marine Corps with 349 H-1 aircraft through a combination of new production and a limited quantity of remanufactured aircraft.

The H-1 Upgrades Program is replacing the Marine Corps' UH-1N and AH-1W helicopters with state-of-the-art UH-1Y "Yankee" and AH-1Z "Zulu" aircraft. The new aircraft are fielded with integrated glass cockpits, world-class sensors, and advanced helmet-mounted sight and display systems. The future growth plan includes a digitally-aided, close air support system designed to integrate these airframes, sensors, and weapons systems together with ground combat forces and other capable DoD aircraft. Integration of low-cost weapons such as the Advanced Precision Kill Weapon System II provides increased lethality while reducing collateral damage.

The UH-1Y aircraft achieved IOC in August 2008 and FRP in September 2008. The "Yankee Forward" procurement strategy prioritized UH-1Y production in order to replace the under-powered UH-1N fleet as quickly as possible. The last UH-1N was retired from service as of December 2014. The AH-1Z program received approval for FRP in November 2010 and achieved IOC in February 2011. As of February 2015, 148 aircraft (109 UH-1Ys and 39 AH-1Zs) have been delivered to the Fleet Marine Force. An additional 60 aircraft are on contract and in production. Lot 1-7 aircraft deliveries are complete for both the UH-1Y and AH-1Z. Lot 8 and 9 deliveries are complete for the UH-1Y, and Lot 10 UH-1Y deliveries are in progress and ahead of schedule.

The H-1 program is in the process of integrating both the UH-1Y and AH-1Z into the larger digitally interoperable programs of the Marine Corps. With the integration of Intrepid Tiger II, the HMLA community will now be able to provide the MAGTF Commanders with all six essential functions of Marine Air. Additionally, these aircraft will incorporate Software Reprogrammable Payload (SRP) to utilize diverse networks and waveforms thus allowing maneuverability within the spectrum. SRP will employ systems as Link-16, Tactical Targeting Network Technology, Adaptive Networking Wideband Waveform, and the Soldier Radio Waveform.

MH-60 (Overview)

MH-60 Seahawks have consistently met readiness and operational commitments. There will be 38 Navy Seahawk squadrons with 275 MH-60S and 280 MH-60R aircraft when transitions from the SH-60B, SH-60F, and HH-60H are complete. Production and squadron transitions will continue through 2017. Over the last twelve years of combat operations, deployed ashore and aboard our aircraft carriers, amphibious ships, and surface combatants at sea, Navy H-60 helicopters have provided vital over-watch and direct support to troops in combat across multiple theaters of operation and variety of missions; including support to special operations forces, air ambulance, surface warfare, anti-submarine warfare, mine warfare, logistics support and humanitarian assistance/disaster relief.

MH-60R Seahawk

The Fiscal Year 2016 President's Budget requests \$970 million in APN for 29 helicopters. The production program continues to deliver on-cost and on-schedule.

The MH-60R Multi-Mission Helicopter provides strike group protection and adds significant capability in its primary mission areas of Undersea Warfare and Surface Warfare; the latter including Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat response capabilities. The MH-60R is the sole organic air Anti-Submarine Warfare (ASW) asset in the Carrier Strike group (CSG) and serves as a key contributor to theater level ASW. The MH-60R also employs advanced sensors and communications to provide real-time battlespace management with a significant, active or passive, over-the-horizon targeting capability. Secondary mission areas include Search and Rescue, Vertical Replenishment, Naval Surface Fire Support, Logistics Support, Personnel Transport and Medical Evacuation.

The \$21.4 million RDT&E,N request supports the MH-60R Test Program, consisting of numerous system upgrades and Pre-Planned Product Improvements, to include the Digital Rocket Launcher (DRL) with APKWS II, Helicopter Infra-Red Suppression System, Multifunctional Information Distribution System-Low Volume Terminal (LVT) Block Upgrade 2, and the VHF Omnidirectional Ranging/Instrument Landing System.

MH-60S Seahawk

The Fiscal Year 2016 President's Budget requests \$28 million in APN for annualized support of the final deliveries of aircraft, trainers, ground support equipment, and publications required to complete the production program of 275 helicopters. The production program continues to deliver on-cost and on-schedule. The MH-60S Multi-Mission Helicopter provides strike group protection and adds significant capability in its primary mission areas of Mine Warfare and Surface Warfare. Secondary mission areas include Combat Search and Rescue, Support to Special Op-

erations Forces, Vertical Replenishment, Logistics Support, Personnel Transport and Medical Evacuation.

The \$5.2 million RDT&E,N request supports the MH-60S Test Program, consisting of system upgrades for Airborne Mine Countermeasures (AMCM), Armed Helicopter FAC/FIAC Defense, and the commencement of a service life assessment program.

Armed Helo Block 3A Operational Test (OT) was completed in June 2007 and Block 3B (added Link 16 capability) OT was completed in November 2009. Test and Evaluation (T&E) of fixed forward firing weapon (FFW) (20mm gun system) was completed in Fiscal Year 2012. T&E of initial FFW Unguided Rocket (UGR) capability was completed in Fiscal Year 2013. T&E for Digital Rocket Launcher APKWS II and expanded UGR capability for the FAC/FIAC threat is in work and planned to complete in Fiscal Year 2016. Planned Airborne MCM Initial Operational Test and Evaluation (IOT&E) and Follow-On Operational Test and Evaluation (FOT&E) periods were changed to Operational Assessments, with the final IOT&E aligned with LCS Mine Counter Measures Mission Package IOT&E.

EXECUTIVE SUPPORT AIRCRAFT

VH-3D / VH-60N Executive Helicopter Series

The VH-3D and VH-60N are safely performing the Executive Lift mission worldwide. As these aircraft continue to provide seamless vertical lift for the President of the United States, the DON is working closely with HMX-1 and industry to sustain these aircraft until a Presidential Helicopter Replacement platform is fielded. The Fiscal Year 2016 President's Budget requests an investment of \$76.1 million of APN to continue programs that will ensure the in-service Presidential fleet remains a safe and reliable platform.

Ongoing VH-60N efforts include the Cockpit Upgrade Program, engine upgrade program, and a Communications Suite Upgrade (Wide Band Line of Sight) that provides survivable access to the strategic communications network. The continuing Structural Enhancement Program and the Obsolescence Management Program applies to both VH-60N and VH-3D. The program has significantly reduced the cost and schedule of the VH-3D Cockpit Upgrade Program by focusing on critical obsolescence issues. These technology updates for legacy platforms will be directly leveraged for the benefit of the ensuing replacement program (VH-92A).

VH-92A Presidential Helicopter Replacement Aircraft

The Fiscal Year 2016 President's Budget request includes \$507.1 million of RDT&E,N to fund the VH-92 EMD contract and associated government activities. Significant progress has been made in the past year with completion of the Milestone B Review in March, receipt of the Acquisition Decision Memorandum in April, award of the EMD contract to Sikorsky Aircraft Corporation in May, completion of the System Requirements Review in August and completion of the Integrated Baseline Review in November. The Sikorsky S-92A aircraft will be used to execute the acquisition strategy of integrating mature subsystems into an air vehicle that is currently in production. Initial contractor testing on an S-92A aircraft is planned for 2015 and early 2016, and the critical Design Review is planned for the 4th quarter of Fiscal Year 2016. The first of the planned operational inventory of 21 aircraft could begin fielding as early as 2020.

FIXED-WING AIRCRAFT

KC-130J

The DON plans to procure two KC-130Js and continue product improvements. Targeted improvements include aircraft survivability through advanced electronic countermeasure modernization and obsolescence upgrades to the Harvest HAWK ISR/Weapon Mission Kit.

Fielded throughout our active force, the KC-130J brings increased capability, performance and survivability with lower operating and sustainment costs to the MAGTF. Forward deployed in support of ongoing operations since 2005, the KC-130J continues to deliver Marines, fuel and cargo whenever and wherever needed. In 2015 the KC-130J remains in high demand, providing tactical air-to-air refueling, assault support, Close Air Support (CAS) and Multi-sensor Imagery Reconnaissance (MIR) capabilities, in support of Special Purpose MAGTFs and deployed MEUs.

First deployed in 2010, the roll-on/roll-off Harvest HAWK mission kit for the KC-130J continues to provide extended MIR and CAS capabilities. With almost 7,000 hours flown, over 200 Hellfire missile and 90 Griffin munition combat engagements, this expeditionary mission kit has proven its worth and made the KC-130J even

more indispensable for Marines on the ground. All six mission kits have been fielded, and funding included in the fiscal year 2016 budget request will be used to maintain operational relevance of this mission system through compatibility with additional Hellfire variants and an improved full motion video data-link.

The Marine Corps has funded 53 of the 79 KC-130J aircraft in the program of record. The three aircraft included in the Fiscal Year 2013 budget would complete the Active Component (AC) requirement of 51 aircraft. However, the Marine Corps began using the AC backup aircraft to accelerate the Reserve Component (RC) transition from the legacy KC-130T aircraft to the more capable and efficient KC-130J in fiscal year 2014. The aircraft requested in the fiscal year 2016 President's Budget will continue to increase KC-130J inventory as we strive to achieve Full Operational Capability in the RC. Delays in procurement would force the Marine Corps to sustain the KC-130T aircraft longer than planned at an increased cost.

It is also important to note that the US Air Force C-130J procurement is expected to end in 2022. If the Marine Corps procures KC-130Js at a rate of two per year from fiscal year 2016–2022, we will have approximately 12 aircraft remaining to procure in order to reach the Program of Record (POR) of 79 aircraft. This POR is expected to complete in 2029. After the USAF completes its C-130J procurement, NAVAIR will no longer be able to leverage USAF contracting services. Given the loss of USAF contracting services and the uncertainty of additional Foreign Military Sales, the Navy and Coast Guard customers potentially could have a significant unit cost increase.

MARITIME SUPPORT AIRCRAFT

P-8A Poseidon

The P-8A Poseidon recapitalizes the Maritime Patrol ASW, Anti-Surface Warfare (ASuW) and armed ISR capability currently resident in the P-3C Orion. The P-8A combines the proven reliability of the commercial 737 airframe with avionics that enables integration of modern sensors and robust communications. The P-8A's first operational deployment was completed in June 2014, and continuous 7th Fleet operational deployments are underway. As of February 2015, four Fleet squadrons have completed transition to P-8A. All Fleet squadrons are scheduled to complete transition by the end of fiscal year 2019. The P-8A program is meeting all cost, schedule and performance parameters in accordance with the approved Acquisition Program Baseline.

Boeing has delivered 21 aircraft (Low Rate Initial Production (LRIP) I/II/III) to the Fleet as of February 2015, and three remaining LRIP III aircraft are scheduled to deliver by May 2015. LRIP IV (13 aircraft), and FRP 1 (16 aircraft) are under contract and will start delivering in May 2015. FRP 2 (nine aircraft) is planned to award in June 2015. The fiscal year 2016 President's Budget procures 47 P-8As over the FYDP and sustains the P-3C to P-8A transition. In fiscal year 2016 the warfighting requirement remains 117 aircraft; however, the fiscally constrained inventory objective for 109 aircraft will provide adequate capacity at acceptable levels of risk.

As fleet deliveries of the Increment 1 configuration accelerate, integration and testing of P-8A Increment 2 capability upgrades continues. P-8A Increment 2 Engineering Change Proposal (ECP) 1 "Early Multi-Static Active Coherent (MAC)" FOT&E commenced November 15, 2014. The Navy is on track to field the ECP 1 "Early MAC" capability in fiscal year 2015 followed by Increment 2 ECP 2 "Full MAC" capabilities in fiscal year 2016. The Increment 2 ECP 3 contract for High Altitude ASW Weapons Capability capabilities was awarded in December 2014.

P-3C Orion

The aging P-3 fleet will continue to provide critical ASW, ASuW and ISR support for joint and naval operations worldwide until the Fleet completes transition to P-8A. The fiscal year 2016 budget request provides \$3.1 million in funding required to manage P-3C aircraft mission systems obsolescence during the transition. As of December 2014, 61 P-3 Special Structural Inspection-Kits have been installed (zero remaining); 87 Zone 5 modifications completed (last three aircraft in work); and 20 Outer Wing Installations completed (last nine aircraft in work).

The P-3 aircraft is well beyond the original planned fatigue life of 7,500 hours for critical components, with an average airframe usage of over 18,400 hours. The fiscal year 2016 request continues to fund the P-3 Fatigue Life Management Program so the Navy can maintain sufficient capacity to successfully complete the transition to P-8A.

EP-3 Aries Replacement / Sustainment

The EP-3E Aries is the Navy's premier manned Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR&T) platform. The Joint Airborne Signals intelligence (SIGINT) Common Configuration includes Multi-Intelligence sensors, robust communication, and data links employed by the flexible and dependable P-3 air vehicle to ensure effective MISR&T support across the full Range of Military Operations. The fiscal year 2011 National Defense Authorization Act directed Navy to sustain EP-3E airframe and mission systems relevance to minimize SIGINT capability gaps until the systems are fully recapitalized with a platform or family of platforms that in the aggregate provide equal or better capability and capacity. The Fiscal Year 2016 request maintains the retirement dates from the previous year that were extended by one year to Fiscal Year 2019 and Fiscal Year 2020, respectively.

Navy ISR family of systems approach shifts focus from platforms to payloads. The future force will rapidly respond to changing threats with modular, scalable, netted sensors and payloads on a range of sea and shore-based manned and unmanned systems, establishing persistent Maritime ISR when and where it is needed.

Navy's ISR&T transition plan will deliver increased capacity and persistence by the end of the decade. However, due to fiscal and end strength constraints, the Department will accept some risk in near term capability and capacity. The Fiscal Year 2016 budget request reduces risk compared to the previous fiscal year and the Navy continues to work with Joint Staff, DoD, and the Fleet to optimize the ISR transition plan. The transition plan remains largely unchanged from Fiscal Year 2015.

AIRLIFT/CARGO UTILITY AIRCRAFT

COD Recapitalization (Navy V-22 Variant)

The C-2A fleet, which provides long-range logistical support to carrier strike groups, will reach the end of its service life in the mid-2020s with continued sustainment investment. The Navy is planning to recapitalize the COD capability with an extended range variant of the V-22. Fiscal Year 2016 investments support an affordable COD recapitalization plan that procures a version of the V-22 Osprey under the existing Program of Record (POR).

The Navy's variant of V-22 has been a component of the POR since program inception. This transition strategy allows the Navy to recapitalize the aging C-2 COD capability in an affordable manner and evolve the Aerial Logistics Concept of Operations from the CVN centric "Hub and Spoke" model to a flexible Sea Base support concept.

UNMANNED AIRCRAFT SYSTEMS (UAS)

MQ-4C Triton UAS

The Fiscal Year 2016 President's Budget enables MQ-4C Triton entry into production with three LRIP aircraft in Fiscal Year 2016.

The Fiscal Year 2016 President's Budget requests \$227.2 million in RDT&E,N to continue Triton development activities, \$150.9 million in RDT&E for Triton modernization, and \$548.8 million of APN for procurement of the first lot of LRIP aircraft and for procurement of long lead materials for the second lot of LRIP aircraft.

Triton will start establishing five globally-distributed, persistent maritime ISR orbits beginning in Fiscal Year 2018, as part of the Navy's Maritime ISR&T transition plan. MQ-4C Triton test vehicles have completed 21 total flights as of February 2015 and are on schedule to begin sensor integration testing this spring. This rigorous integrated flight test program will support Milestone C planned for Fiscal Year 2016. The MQ-4C Triton is a key component of the Navy Maritime Patrol Reconnaissance Force. Its persistent sensor dwell, combined with networked sensors, will enable it to effectively meet ISR requirements in support of the Navy Maritime Strategy.

The Navy currently maintains an inventory of four USAF Global Hawk Block 10 UAS, as part of the BAMS Demonstrators, or BAMS-D program. These aircraft have been deployed to CENTCOM's AOR for over six years. BAMS-D recently achieved over 14,000 flight hours in support of CENTCOM ISR tasking. These assets are adequate to cover all Navy needs through Fiscal Year 2018.

Unmanned Combat Air System Demonstration (UCAS-D)

The Fiscal Year 2016 President's Budget requests no funding for the UCAS-D program. The UCAS-D program is in its final year of funding (\$35.9M in RDT&E,N for Fiscal Year 2015). With the completion of the Autonomous Aerial Refueling test flights this spring, the demonstration will come to a successful close. The X-47B has

met demonstration objectives and reduced technical risk by transferring lessons learned to the UCLASS program. The X-47B demonstrators have paved the way for the proficient introduction of a sea-based unmanned aircraft system by digitizing the carrier controlled environment, achieving precision landing navigation performance, demonstrating a deck handling solution, and refining the concept of operations.

Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System

The UCLASS system will provide the Carrier Strike Group (CSG) with a persistent unmanned ISR&T and precision strike capability that is available organically to the CSG and comprehensively to the Joint force. The CSG is often the first responder for the nation. The UCLASS system will enhance the CSG's capability and versatility and enable sustained 24/7 operations from a single aircraft carrier. The Fiscal Year 2016 President's Budget requests \$134.7 million in RDT&E,N for UCLASS system development efforts. This funding will continue progress on the Control System & Connectivity, Carrier Segments and the government Lead System Integrator efforts, while the Department conducts a Strategic Portfolio Review of ISR&T systems and the future composition of the carrier air wing.

The UCLASS system will be integrated with carrier air wing operations, increasing the effectiveness of current CSG ISR&T capabilities (airborne, surface, and sub-surface) beginning in the Fiscal Year 2022 timeframe. Once deployed, the UCLASS System will inherently provide reach-back to Navy and National architectures for command and control and for tasking, processing, exploitation, and dissemination. The UCLASS system will achieve these capabilities through the development and integration of a carrier-suitable, semi-autonomous, unmanned Air System; a Control System and Connectivity Segment; and *Nimitz/Ford*-class Carriers. The development and integration effort is overseen by the Government as the Lead Systems Integrator, providing system-of-systems integration for the UCLASS Program.

MQ-8 Vertical Takeoff and Landing Unmanned Aerial Vehicle (VTUAV) Fire Scout

The MQ-8 Fire Scout is an autonomous system designed to operate from any suitably-equipped air-capable ship, carry modular mission payloads, and operate using the Tactical Control System and Line-Of-Sight Tactical Common Data Link. The Fiscal Year 2016 President's Budget requests \$52.8 million of RDT&E,N to continue development of the MQ-8C endurance upgrade, to include integration of ISR payloads, radar and short range air to surface weapons. Funding will also be used to continue payload and Frigate integration with the MQ-8B and MQ-8C. The request for \$142.5 million in APN procures MQ-8C air vehicles; MQ-8 System mission control systems; ancillary, trainers and support equipment; technical support; modifications based on engineering changes; and logistics products and support to outfit suitably-equipped air-capable ships and train the associated Aviation Detachments. Commonality of avionics, software, and payloads between the MQ-8B and MQ-8C has been maximized. The MQ-8B and MQ-8C air vehicles will utilize the same ship-based mission control system and other ship ancillary equipment.

Fire Scout was deployed to Afghanistan from May 2011 until August 2013, and amassed more than 5,100 dedicated ISR flight hours in support of U.S. and coalition forces. Since 2012, the MQ-8B Fire Scout has flown more than 7,500 hours from Navy Frigates, performing hundreds of autonomous ship board take-offs and landings in support of Special Operations Forces and Navy operations. The MQ-8C Fire Scout continues developmental test and has completed phase II dynamic interface testing aboard the Navy destroyer USS JASON DUNHAM. The MQ-8C has flown more than 400 flight hours since October of 2013. The Fire Scout program will continue to support integration and testing for LCS-based mission modules.

Tactical Control System (TCS)

The Fiscal Year 2016 President's Budget requested \$8.6 million in RDT&E,N for the MQ-8 System's Tactical Control System (TCS). TCS provides a standards-compliant open architecture with scalable command and control capabilities for the MQ-8 Fire Scout system. In Fiscal Year 2016 TCS will continue to transition the Linux operating system to a technology refreshed mission control system, and enhance the MQ-8 System's Automatic Identification System and sensor track generation integration with ship systems. The Linux operating system conversion overcomes hardware obsolescence issues with the Solaris based control stations and provides lower cost software updates using DoD common application software. In addition, the TCS Linux upgrade will enhance collaboration with the Navy's future UAS Common Control System.

Small Tactical Unmanned Aircraft System (STUAS) RQ-21A Blackjack

The Fiscal Year 2016 President's Budget requests \$11.1 million in RDT&E (\$4.7 million USN, \$6.4 million USMC); \$55.0 million in APN for three Navy systems to support Naval Special Warfare; and \$84.9 million in PMC for four RQ-21A systems (which includes 20 air vehicles) to address Marine Corps ISR capability requirements currently supported by service contracts. This Group 3 UAS will provide persistent ship and land-based ISR support for expeditionary tactical-level maneuver decisions and unit level force defense and force protection missions. Blackjack entered LRIP in 2013, completed IOT&E in the second quarter of Fiscal Year 2015, with Full Rate Production planned for the first quarter of Fiscal Year 2016.

The RQ-21's current configuration includes full motion video, communications relay package and automatic identification systems. The air vehicle's payload bay allows for rapid deployment of signal intelligence payloads. The Marine Corps is actively pursuing technological developments for the RQ-21 system in an effort to provide the MAGTF and Marine Corps Forces Special Operations Command with significantly improved capabilities. Initiatives include over-the-horizon communication and data relay ability to integrate the system into future networked digital environments; electronic warfare and cyber payloads to increase non-kinetic capabilities; and change detection radar and moving target indicators to assist warfighters in battlespace awareness and force application.

RQ-7B Shadow Marine Corps Tactical UAS (MCTUAS)

The Fiscal Year 2016 President's Budget requests \$0.7 million in RDT&E,N for the RQ-7B Shadow to continue joint development efforts and government engineering support and \$3.8 million in APN to acquire PRC-152A radios and weatherization kits.

STRIKE WEAPONS PROGRAMS

Tactical Tomahawk (TACTOM) BLK IV Cruise Missile Program

The Fiscal Year 2016 President's Budget requests \$184.8 million in WPN for procurement of an additional 100 TACTOM weapons and associated support, \$28.0 million in OPN for the Tomahawk support equipment, and \$17.7 million in RDT&E,N for capability updates of the weapon system. WPN resources will be for the continued procurement of this versatile, combat-proven, deep-strike weapon system in order to meet ship load-outs and combat requirements. OPN resources will address the resolution of Tactical Tomahawk Weapons Control Station obsolescence, interoperability, and information assurance mandates. RDT&E,N will be used to continue engineering efforts for A2/AD navigation and communication upgrades.

Tomahawk provides an attack capability against fixed and mobile/moving targets, and can be launched from both Surface Ships and Submarines. The current variant, TACTOM, preserves Tomahawk's long-range precision-strike capability while significantly increasing responsiveness and flexibility. TACTOM's improvements include in-flight retargeting, the ability to loiter over the battlefield, in-flight missile health and status monitoring, and battle damage indication imagery, providing a digital look-down "snapshot" of the battlefield via a satellite data link. Other Tomahawk improvements include rapid mission planning and execution via Global Positioning System (GPS) onboard the launch platform and improved anti-jam GPS.

Tomahawk Theater Mission Planning Center (TMPC)

The Fiscal Year 2016 President's Budget for TMPC requests \$7.5 million in RDT&E,N and \$43.2 million OPN for continued system upgrades and sustainment. TMPC is the mission planning and strike execution segment of the Tomahawk Weapon System. TMPC develops and distributes strike missions for the Tomahawk Missile; provides for precision targeting, weaponeering, mission and strike planning, execution, coordination, control and reporting. TMPC provides Combatant Commanders and Maritime Component Commanders the capability to plan and/or modify conventional Tomahawk Land-Attack Missile missions. TMPC optimizes all aspects of the Tomahawk missile technology to successfully engage a target. TMPC is a Mission Assurance Category 1 system, vital to operational readiness and mission effectiveness of deployed and contingency forces. Planned upgrades support integration, modernization and interoperability efforts necessary to keep pace with missile upgrades. These required upgrades keep pace with new imagery formats, threat changes, improved GPS denied navigation capability, mission planning timeline improvements, upgraded communications architecture. Additionally, Cyber security mandates will be implemented to reduce TMPC vulnerability to cyber-attacks. These upgrades are critical for the support of over 180 TMPC operational sites worldwide, afloat and ashore, to include: Cruise Missile Support Activities (in-

clusive of US STRATCOM), Tomahawk Strike and Mission Planning Cells (5th, 6th, 7th Fleet), Carrier Strike Groups, Surface and Subsurface Firing Units and Labs/ Training Classrooms.

Offensive Anti-Surface Warfare (OASuW)/Increment 1 Weapon

The Fiscal Year 2016 President's Budget requests \$285.8 million in RDT&E,N for the completion of technology maturation and initiation of integration and test of the air-launched OASuW/Increment 1 program. Increment 1 leverages the Defense Advanced Research Projects Agency Long Range Anti-Ship Missile (LRASM) weapon demonstration effort. Increment 1 provides Combatant Commanders the ability to conduct ASuW operations against high value surface combatants protected by Integrated Air Defense System with long-range Surface-to-Air-Missiles and denies the adversary the sanctuary of maneuver. The OASuW/Increment 1 program is a DON led joint program, scheduled to field on the B-1 by the end of Fiscal Year 2018 and the F/A-18E/F by the end of Fiscal Year 2019.

Next Generation Strike Capability (NGSC)

The Fiscal Year 2016 budget requests \$9.6 million for initiation of efforts to develop a Next Generation Strike Capability (NGSC). As part of a long-term strike weapons strategy, NGSC will study long-range, survivable, multi-mission, multi-platform conventional strike capability options planned to IOC in the mid-2020 timeframe. NGSC will become the follow-on acquisition program to the current OASuW/Increment 1 (LRASM) and Tomahawk Weapon System modernization programs. The NGSC program will commence an Analysis of Alternatives (AoA) during Fiscal Year 2016. The AoA will assess existing weapons systems, emergent technologies, and industry internal research and development activities; develop potential program of record costs, schedules, and risk assessments; and conduct additional threat assessments based on projected scenarios and operational environments. This analytical data will inform performance and relevant technology requirements to be matured as part of potential NGSC materiel solution(s) and associated kill-chain(s).

Sidewinder Air-Intercept Missile (AIM-9X)

The Fiscal Year 2016 President's Budget requests \$76.0 million in RDT&E,N and \$96.4 million in WPN for this joint DON and USAF program. RDT&E,N will be applied toward the Engineering Manufacturing Development phase of critical hardware obsolescence redesign, Development Test of missile v9.4 software, and the design and development of Joint Chiefs of Staff directed Insensitive Munitions improvements. WPN funding is requested for production of a combined 227 All-Up-Rounds and Captive Air Training Missiles and missile-related hardware. The AIM-9X Block II Sidewinder missile is the newest in the Sidewinder family and is the only short-range infrared air-to-air missile integrated on Navy, Marine Corps, and USAF strike-fighter aircraft and Marine Corps attack helicopters. This fifth-generation weapon incorporates high off-boresight acquisition capability and increased seeker sensitivity through an imaging infrared focal plane array seeker with advanced guidance processing for improved target acquisition; data link capability; and advanced thrust vectoring capability to achieve superior maneuverability and increase the probability of intercept of adversary aircraft.

Advanced Medium-Range Air-to-Air Missile (AMRAAM/AM-120D)

The Fiscal Year 2016 President's Budget requests \$32.2 million in RDT&E,N for continued software capability enhancements and \$192.9 million in WPN production of a combined 167 All-Up-Rounds and Captive Air Training Missiles and missile-related hardware. AMRAAM is a joint USAF and DON weapon that counters existing aircraft and cruise-missile threats. It uses advanced counter-electronic attack capabilities at both high and low altitudes, and can engage from beyond visual range as well as within visual range. AMRAAM provides an air-to-air first look, first shot, first kill capability, while working within a networked environment in support of the Navy's Theater Air and Missile Defense Mission Area. RDT&E,N will be applied toward Software upgrades to counter emerging Electronic Attack threats for AIM-120C/D missiles.

Small Diameter Bomb II (SDB II)

The Fiscal Year 2016 President's Budget requests \$97.0 million in RDT&E for continued development of the Department of the Air Force led joint service SDB II weapon and bomb-rack program. SDB II provides an adverse weather, day or night standoff capability against mobile, moving, and fixed targets, and enables target prosecution while minimizing collateral damage. SDB II will be integrated into the internal carriage of both DON variants of the Joint Strike Fighter (F-35B and F-

35C) as well as the Navy's F/A-18E/F. The Joint Miniature Munitions Bomb Rack Unit (JMM BRU) BRU-61A/A is being developed to meet the operational and environmental integration requirements for internal bay carriage of the SDB II in the F-35B and F-35C, and external carriage on F/A-18 E/F. JMM BRU entered Technology Development in June 2013.

Joint Standoff Weapon (JSOW)

The Fiscal Year 2016 President's Budget requests \$0.4 million in RDT&E,N to address software integration and interoperability following the completion of efforts associated with Operational Testing in Fiscal Year 2015, and \$21.4 million in WPN to begin Captive Air Training Missile (CATM) software integration, continuation of Telemetry Instrumentation Kit (TIK) Non Recurring Engineering and re-life efforts, and shutdown of the JSOW production line. The Department's decision to terminate JSOW C-1 production was due to fiscal constraints, an analysis of targets determining there was sufficient inventory to handle current operational needs, and the ongoing focus to fund future capabilities. The DON has submitted a final 2014 termination Selected Acquisition Report and Congressional notification. The Navy is preparing a transition plan to address the production termination decision and document the planned use of RDT&E,N, WPN, and O&M,N resources to complete JSOW C-1 Operational Test activities, missile and TIK production, CATM conversions, and long-term weapon system operation & support.

Advanced Anti-Radiation Guided Missile (AARGM) & AARGM Extended Range

The Fiscal Year 2016 President's Budget requests \$12.9 million of RDT&E,N for Block 1 follow-on development and test program, \$38.4 million of RDT&E,N for AARGM Extended Range (ER) development, and \$122.3 million of WPN for production of 138 All-Up-Rounds and Captive Training Missiles. The AARGM cooperative program with the Italian Air Force transforms the High-Speed Anti-Radiation Missile (HARM) into an affordable, lethal, and flexible time-sensitive strike weapon system for conducting Destruction of Enemy Air Defense missions. AARGM adds multi-spectral targeting capability and targeting geospecificity to its supersonic fly-out to destroy sophisticated enemy air defenses and expand upon the HARM target set. The program achieved IOC on the F/A-18C/D aircraft in July 2012, with forward deployment to U.S. Pacific Command, and integration is complete for AARGM with release of H-8 System Configuration Set for F/A-18E/F and EA-18G aircraft. The development of an AARGM-ER modification program, involving hardware and software improvements, will begin in Fiscal Year 2016. This effort will increase the weapon system's survivability against complex, new, and emerging threat systems and enable launch platforms greater stand-off range.

Joint Air-to-Ground Missile (JAGM)

The Fiscal Year 2016 President's Budget requests \$25.9 million in RDT&E,N to begin a five year integration effort of JAGM Increment 1 onto the Marine Corps AH-1Z in support of an Initial Operational Capability by Fiscal Year 2019. JAGM is a Department of the Army led, joint pre-Major Defense Acquisition Program. JAGM is a direct attack/close-air-support missile program that will utilize advanced seeker technology and be employed against land and maritime stationary and moving targets in adverse weather and will replace the Hellfire and TOW II missile systems. In November 2012, the Joint Chiefs of Staff authorized the JAGM incremental requirements and revalidated the DON's AH-1Z Cobra aircraft as a threshold platform. JAGM Increment 1 is expected to achieve Milestone B certification in Fiscal Year 2015.

Advanced Precision Kill Weapon System II (APKWS II)

The Fiscal Year 2016 President's Budget requests \$53.5 million in PANMC for procurement of 1,834 APKWS II Precision Guidance Kits. APKWS II provides an unprecedented precision guidance capability to DON unguided rocket inventories, improving accuracy and minimizing collateral damage. Program production continues on schedule, meeting the needs of our warfighters in today's theaters of operations. IOC was reached in March 2012 on the Marine Corps' AH-1W and UH-1Y. These platforms have expended more than 170 APKWS II weapons in combat. Marine Corps AH-1Z platforms will be certified to fire APKWS II in Fiscal Year 2015. The Navy successfully integrated APKWS II on the MH-60S for an Early Operational Capability in March 2014 and is on track to finalize a similar effort for the MH-60R in March 2015.

CONCLUSION

We are an agile strike and amphibious power projection force in readiness, and such agility requires that the aviation arm of our naval strike and expeditionary forces remain strong. Mr. Chairman, and distinguished committee members, we request your continued support for the Department's Fiscal Year 2016 budget request for our Naval Aviation programs.

Senator WICKER. Thank you very much. Thank you for your testimony and for your service.

Let me just ask then about some things I brought up in my opening statement.

What about the observation by Dr. Gilmore in his annual report that the initial software for the F-35B has capability shortfalls? Help us understand how this might affect our aviators in hostile environments. General Davis, are they pointing to you to answer?

General DAVIS. Senator Wicker, they are. Good morning, sir. Good morning, ma'am.

Senator WICKER. Thank you.

General DAVIS. The F-35B is on track right now for us to declare an IOC in July of this year. We will not declare IOC unless we meet all of our gates. We have got 13 things we track continuously to make sure that our pilots, the aircraft, the maintainers, and the test program makes its gates. We still have some data points we have got to pull in to go do that. But the software we see, which is called the 2 Bravo software, 2B, is giving us what we need, that initial operating capability to go actually take this aircraft to combat.

Some of the things that Dr. Gilmore's report pointed out—they are all true. A lot of those are true. I believe actually the EMF A121, which is our first squadron which will be the squadron that we declare to be initial operational capability out in Yuma, Arizona has been working through those software shortfalls but actually finding tactical workarounds for our pilots. In many ways, that software is giving us a lot more capability than we have in our current fleet today.

The fusion things that Dr. Gilmore talked about—we do have four-ship fusion issues right now, but we do not have two-ship fusion issues. So right now, I can take two aircraft and tie them together and another two aircraft, tie them together, and then tie all four together through a link 16 and give a tremendous capability that we do not have today.

The F-35B, when it comes to initial operational capability, will give us through the weather close air support attack capability. It will also give us the ability to attack targets in contested environments that we do not have today. We can take that aircraft to amphibious ships. We can take that aircraft to short-fueled 3,000-foot runways and operate. We see that we are getting actually a step up in capability than what we have in our legacy aircraft today. I have no fusion in the airplanes that operate today. We believe we are getting a great warfighting capability for our marines.

We are going to continue to advance the F-35, as we do with everything we buy and operate, to deliver the close air support, the interdiction, the reconnaissance, and the air-to-air capabilities that our marines need forward deployed.

Senator WICKER. So let me be specific. Do you take issue with any of the observations Dr. Gilmore made in this report?

General DAVIS. I read through the report, and I know Dr. Gilmore. I would say that we are in a better position than Dr. Gilmore lays out that we are in the F-35B. You talk to the pilots that are flying that airplane right now. They are F-18, they are Harrier, and they are Prowler pilots. They love the F-35B and they would not go back to their original platforms. So they think they have got a tremendous capability. When you talk to young captains and majors and lieutenant colonels that are flying that airplane, they think they have got a great capability.

The software issues that we are dealing with, 2B software—we actually think it is tracking the way it is supposed to. We still have more test points that we have got to pull in. We will look at that in July. If the aircraft and the pilots and the squadron is not ready to declare IOC with all the things we say they have to have for an IOC declaration, we will not declare initial operating capability.

Senator WICKER. Well, many of the points he made were valid, I understand you to say, and you have worked through them.

General DAVIS. We have.

Senator WICKER. Just for the record—I mean, we do not have all of them in front of us—do this. Get back to us on the record as to what he might have said that you disagree with, the issues that do not need any more tinkering. Will you do that?

General DAVIS. Absolutely, sir.

[The information referred to follows:]

Senator Wicker, you asked me to discuss the Marine Corps' position on Dr. Gilmore's annual F-35 report and where we might disagree with it.

- The report expressed concern that Block 2B software development was off track.
 - As we have demonstrated, Block 2B was delivered in time to make the objective Initial Operational Capability (IOC) date of July 2015.
- The report discussed the June 2014 engine failure.
 - The Joint Program Office (JPO) approved rub-in procedures have been executed and have the fleet g-limits up to the full limits of what the current aircraft configuration will permit—both on IOC and non-IOC jets.
- The report notes that Mission Data File (MDFs) development is behind and the Marine Corps will receive only a partial solution at IOC. The USMC concurs with this Director, Operational Test and Evaluation (DOT&E) assessment with the following notes:
 - Per the DOT&E report, fully certified MDFs from USRL are slated for release in the Nov/Dec 2015 timeframe. This only speaks to a piece of the plan and aircraft capability. We are currently flying a version of the MDFs in our IOC jets which is fully combat capable. While the current MDFs we are flying are immature, the advantages the F-35 brings in terms of signature, sensors, and information exchange combine to make the F-35 far more capable than the current USMC TACAIR fleet.
- The Marine Corps does not agree with the DOT&E assessment on Reliability and Maintainability:
 - The Reliability and Maintainability (R&M) data in the DOT&E report is accurate, but is not a true representation of the maturity of F-35's R&M.
 - Six of the nine charts in the R&M cover the three month period immediately following the June 2014 AF-27 Engine incident. The directed red-stripe and appropriately conservative approach to flight operations following the incident drove an increased maintenance workload and reduced Air Vehicle Availability (the metric used in the report) resulting in significant bias in the metrics detailed in the report, making it impossible to use the data as an accurate measure of true program R&M performance.
 - A Mission Essential Function List (MEFL) was approved by the JPO and is awaiting COMNAVAIR Force's final approval in order to gain consistency across all squadron readiness reporting. The formalized MEFL will link Lo-

gistic Control Numbers to specific missions allowing for standardized Mission Capable / Full Mission Capable reporting across squadrons.

- o Trend analysis shows a steady increase in Mission Capable (MC) status as a direct correlation to the introduction of the newer Low Rate Initial Production (LRIP) aircraft to the flight lines. Moreover, the supply system is starting to mature. We are finding that by having a larger supply range and depth it has proven to minimize the Non-Mission Capable Supply Period. This has further contributed to higher numbers of MC aircraft. As such, we have every reason to believe that our readiness rates will improve as we approach and then begin full rate production in fiscal year 2018.
- The USMC concurs with assessment of the status of ALIS development with the following notes:
 - o The agreed upon IOC ALIS was delivered in time to declare IOC in July of 2015 and is functioning to meet the requirement.
- The DOT&E report states concerns with the construct of OT-1 aboard the USS Wasp and its representation of combat operations. Of note, no weapons clearances were in place and the ACE was not embarked:
 - o OT-1 was an extremely successful evolution and concluded the 3rd at-sea test for the F-35B. It is also important to note that the entire ACE has never been embarked for a USMC OT period.
 - o The launch and recovery portion of flight operations at the ship is administrative in nature and therefore does not have a significantly different context in combat. Aircraft can be loaded with fuel to simulate the weight and balance requirement for carrying ordnance and limitations space can be imposed to simulate the presence of the MEU ACE. Furthermore, F-35B conducted combat training missions during OT-1. All of this demonstrated that the aircraft, equipment and personnel were in fact qualified to operate as part of the deployed MEU ACE.
 - o The DOT&E report under-emphasizes the true successes of both the F-35B and F-35C at-sea test events. F-35B has completed three successful at-sea test periods enabling both day and night F-35B operations. F-35C DT-1 has established that the redesigned hook point is suitable for ship operations, set an unprecedented boarding rate of 100 percent and likely paves the way for reduced operational unit training and proficiency requirements.
- DOT&E Recommendations:
 - o Eight (8) DOT&E recommendations reside at the end of the report and six of the eight already have been under action by the JPO. Two (2) DOT&E recommendations are under review:
 - Update program schedules to reflect IOT&E spin-up to start no earlier than November of 2017 and IOT&E in May 2018. The JPO will assess the risks associated with the 3F air system certification activity and will implement risk mitigation options as required to ensure Spin-up and IOT&E entry criteria are met and the integrity of the IOT&E is not compromised. USMC believes the JPO approach to reviewing IOT&E schedule risk is more appropriate and does not concur with DOT&E the IOT&E schedule recommendation.
 - Extending the full-up system level decontamination test to demonstrate the decontamination system effectiveness in a range of operationally realistic environments. F-35 Program is relying upon JPEO Chem Bio Defense (CBD) for the "holistic" solution for multiple DoD customers. This test will take place at Edwards AFB and once complete, the F-35 will be a Technology Readiness Level (TRL) 8: Actual System Completed and flight qualified. USMC concurs with the JPOs response to this DOT&E recommendation.

The Commandant of the Marine Corps declared IOC on 28 July 2015. Preceding that declaration, I directed a thorough evaluation of our IOC squadron, VMFA-121, in order to ensure that the squadron could actually perform the combat mission sets that are required. The squadron performed exceptionally in all areas that were evaluated. This follows years of developmental test and operational flying which have totaled 3 events aboard an L-Class carrier, totaling seven weeks at sea, with test and operational aircraft and Marines, multiple live ordnance sorties, and participation in multiple large force exercises. In the squadron's current posture and configuration they have more capability in key areas than I have in my legacy squadrons. For example, today, the IOC F-35s can operate in high threat environments and target in real time through the weather. I can't do either one of those things with my legacy aircraft. The performance of the squadron in the evaluation, and in the multitude of events that led their run up to it, has reinforced my conviction we are procuring the right aircraft. I am confident that, if required, VMFA-121 could re-

spond to a contingency—giving our nation its first sea based 5th generation strike fighter capability.

Senator WICKER. I appreciate that.

Now, let me ask. Who wants to take the question about the unmanned aerial demonstration program as to the point that 85 percent of the projected life remains on the two aircraft? Is it a good use of the taxpayer money not to continue to utilize these in the interim? Who would like to take that?

Admiral GROSKLAGS. Senator, I have got that one, sir.

So we continue to look at this very closely. The UCAS program that you are talking about, U-C-A-S dash D—the “D” is for demonstrator. This is without a doubt a demonstrator aircraft. It is not a prototype for one of our future UCLASS aircraft. It is clearly a demonstrator.

The primary goal of that demonstrator was to demonstrate the ability to land and take off from an aircraft carrier with an unmanned system. We accomplished that about a year and a half ago. It was a great milestone for the Navy and for naval aviation.

Subsequent to that, we have continued to work with the aircraft carrier in the aircraft landing environment, including with manned aircraft at the same time. We are within a couple weeks of finishing the last scheduled event with that demonstrator aircraft which is an actual air-to-air refueling hookup and transfer of fuel from a tanker to that demonstrator.

However, we have looked at additional opportunities, as you say, to wisely spend the taxpayers' dollars on for the utilization of that aircraft, and we do not believe that it is warranted. In terms of informing us—

Senator WICKER. So there is no use that can be made of the 85 percent of the life of these two aircraft.

Admiral GROSKLAGS. Sir, it is less about the life of the aircraft than it is the ability of that demonstrator to further our goals for unmanned carrier aviation. This aircraft has a unique landing system. It has a unique control system. It uses a unique data link. The network architecture is not the architecture that we will use for our future unmanned aircraft or for the unmanned aircraft that we have in our inventory today. So it does not have the ability to carry a sensor package today. It cannot carry weapons or release weapons. It is a flying demonstrator to get on and off of the aircraft carrier primarily.

We believe we have run that out as far as we need to and that our resources would be better spent pursuing the follow-on capability which is the true capability for the fleet that they need with UCLASS.

Senator WICKER. Was it a mistake the develop the UCAS?

Admiral GROSKLAGS. No, sir, I do not believe so. We learned a tremendous amount about operating an unmanned aircraft in that carrier environment. That was a high-risk/high-reward demonstration event, and it worked. A lot of effort went into it and a lot of engineering and a lot of expertise. We proved to ourselves that we could do it. We proved to ourselves we could do it safely in that very dynamic flight deck environment. But we are beyond that now, and we need to move on to a program that actually can bring a capability to the fleet for weapons capability, intelligence, surveil-

lance, reconnaissance capability. That is what we are looking forward to with the UCLASS program.

Senator WICKER. Thank you very much.

I am going to recognize the ranking member and also reiterate the policy of this chairman in terms of recognizing members. We are going to recognize members in the order of their appearance. So it will be Senators Hirono, Kaine, and Tillis. Senator Hirono?

Senator HIRONO. Thank you, Mr. Chairman.

A few follow-up questions for General Davis regarding the F-35s. The Marine Corps is planning, as you said, to declare IOC on the F-35s July of this year. Now, you have already been asked a series of questions regarding Dr. Gilmore's report. He has charged that the various attributes in the block 2B software release will provide less capability than the aircraft that the Marine Corps currently operates, the F-18 Hornet and the AV-8B Harrier.

General Davis, which Marine Corps official will decide to declare IOC, or in other words, what level of capability is acceptable from the Marine Corps perspective?

I just wanted to note that my understanding is the software in the F-35 is very, very complex and that there are some 22 million lines of code in that aircraft. I think that is what leads to concerns about its readiness. So is the IOC declaration event-based or being driven by a need to meet a calendar deadline for readiness?

General DAVIS. Senator Hirono, thanks for the question. Absolutely the decision to declare IOC will be event-based and conditions-based based on us achieving what we have to do to deliver a combat capability to our marines.

I will tell you they talk about not as capable an airplane as the fourth generation, third generation airplanes. That is absolutely not our position at all, not our view of it, not the guys who fly it. The F-35B, even in 2B software, gives us capability we do not have with legacy fighters. The first thing I talked about earlier was fusion. We have no fusion capability today in any of our legacy fighters in the Marine Corps. We do not have that. So being able to share information, high bandwidth information real-time—we cannot do that. Being able to do close air support for our marines in a contested environment—we cannot do that right now, not to the degree you can do it with a fifth generation airplane like the F-35.

The other one is through the weather, providing close air support through the weather, interdiction through the weather with high fidelity using the APG-81 radar to go do a SAR map. We cannot do that today.

So the way that we provide close air support will be different than we do today, but in many, many ways we think it is a lot more capable than the aircraft we are replacing.

Senator HIRONO. Excuse me, General. I think there is some question that the software in the F-35 will provide us with a lot more capability, but only if it is working. I think that is the question we have. Reassure us that the testing will occur. We all know about software and all the glitches that can occur and especially one that is as complicated. So you are providing us with that reassurance that everything will be a go.

General DAVIS. Absolutely, ma'am. We will. Like I said, what we have been seeing to date, the software we are flying with today and the 2B software being loaded and tested now—we are seeing actually it is a stable software load. It is working very well. Not many of the system crashes. This has been a very reliable airplane for us. Our readiness numbers are coming up. The readiness includes the software and the reliability of that software. So we are seeing nothing but positive trends as we work closer to IOC. But if conditions are met, I will make a recommendation to General Dunford that we declare IOC but only if those conditions are met, not until, and software will be a part of that.

Senator WICKER. Thank you.

Admiral Grosklags, we both mentioned that there is going to be a shortfall estimate this year, and we were told in an earlier hearing that a shortfall of 65 aircraft is manageable, but if we are looking at a shortfall of 134 aircraft—perhaps it is Admiral Manazir who could answer this. How would you describe this estimated shortfall of 134 aircraft? Is it manageable? What do we need to do?

Admiral MANAZIR. Yes, ma'am. Thank you for the question. It was very meaningful for me and Rear Admiral Tom Moore to meet with you about aircraft carriers as well previously.

Of course, on top of those aircraft carriers, we fill those with 44 strike fighters of the United States Navy. So managing the inventory is a complex task that actually connects not only the F-18A plus pluses flown by the Marine Corps, the F-18C flown by the Marine Corps and the Navy, the F-18E and F and the F-35—so as we look at strike fighter inventory management—I use the term “shortfall” when you have a set supply, a set demand, and a set utilization rate, with a set depot condition. If you do not change any condition that we have right now with the current supply on our flight lines, the current depot throughput, the utilization in the fleet on deployment and in training, and the acquisition of new aircraft, you will have a shortage that is depicted as 134 airplanes at the high. But we are changing all of that.

It is meaningful. I will agree with the chairman and Ranking Member Hirono that sequestration is devastating. The reason we are where we are in the depot today is because of sequestration in 2013. When we brought the F-18 As through Ds into the depot, we brought them to extend the flying hours from 6,000 hours per airframe. Through inspections, we got to 8 and we are now extending their service life to 10. Just that planned work is significant. For the first time in history, naval aviation is maintaining three type model series in the same mission area, F-18 legacy, Super Hornets, and F-35. We are sustaining. We are modernizing and we are procuring three type model series. It is very complex. So the planned work with the F-18A through Ds coming in was to extend the service life.

Beyond 6,000 hours, we did not plan for the amount of corrosion we found inside the airframes due to extended service at sea and in the environments we operate in: in the desert in Afghanistan and Iraq; at sea in saltwater corrosion. In fact, the airplane was designed to go away at 6,000 hours. You would not have to do the same kind of corrosion work. Now that we have had to extend that,

we have a significant amount of unplanned work. That unplanned work is causing depot throughput problems.

So if you look at the whole condition, the shortfall at a high goes to 134. At a low, it is actually less than that. The way the U.S. Navy operates our forces, we have a profile called a “fleet response training plan.” That fleet response training plan works up squadrons into integrated units and deploys them at the highest level of readiness they can be. In fact, we always meet that bell in the Navy and Marine Corps. We have not failed to meet deployed readiness yet. The priority is deployed readiness.

Then we tail that readiness off at the other side. So it looks kind of like a hump. If you drew a line across the deployed readiness, all the way across, and you kept everybody at that level you would have no shortfall. We actually intentionally tier the readiness so that if you can picture that rising hump and then going down to the two blank areas between the lower humps and the top part, that represents 65 airplanes. That difference is 65 airplanes. We manage that in tiered readiness. If you look at the static shortfall average for the next 5 years, it is about 100 airplanes. The difference between 65 and 100 is about 36 airplanes. That is why the CNO [Chief of Naval Operations] said I need about two to three squadrons. If we keep the conditions the way they are, we reduce the risk by that if we infuse F-18 Es and Fs that the CNO talked about.

But what we are changing, Ranking Member Hirono, is the depot process through a new process called critical chain project management (CCPM). That is being organized to strengthen the depot throughput to get more airplanes on the flight line and to increase our readiness. We are also changing the demand signal in the training aspect of what we do. Vice Admiral Mike Shoemaker, Commander of Naval Air Forces, is looking at the amount of training we do before and after we go on deployment to make sure that we have got just the right amount of training but not too much. While we increase the depot and while we change the utilization of those airplanes and if we can procure more F-35s sooner—the Navy and the Marine Corps need to get the F-35C—and we get the two to three squadrons that the CNO [Chief of Naval Operations] talked about, you will alleviate the shortfall. We have plans in place to do all of that, ma'am.

Senator HIRONO. So I get that inventory management. There are a lot of moving parts to what you are doing, and you are using all the depots that are available as part of what you are doing?

Admiral MANAZIR. Yes, ma'am. Not only that, looking at the capacity that we have and also asking Boeing to step in and use their resources to solve additional challenges that we have.

Senator HIRONO. Thank you, Mr. Chairman, for your indulgence.

Senator WICKER. Thank you, Senator Hirono.

Senator Kaine, followed by Senator Tillis.

Senator KAINES. Thank you, Mr. Chair, and thank you to the witnesses for the testimony.

I think, Admiral Grosklags, this question may be for you. In the fall of 2014, the Navy released a record of decision about the F-35C basing on the West Coast. Talk a little bit about what the

Navy's plans are vis-a-vis basing decisions, process timing for East Coast basing for the F-35C. Whoever wants to answer that.

Admiral MANAZIR. Senator Kaine, thank you very much.

I am a fighter pilot. I have flown out of Oceana. It is a wonderful base. I also flew out of Cecil and Jacksonville. The facilities on the East Coast, particularly in Virginia, are very, very good.

Having said that, sir, we have not decided, nor have commenced a process to look at East Coast basing. The current procurement profile of the F-35C allows us to look at NAS Lemoore on the West Coast and to fill those squadrons, up and then at the right time, we will start the entire environmental assessment process to look and see where we would base the F-35C on the East coast. We have not started that yet, sir.

Senator KAIN. Do you have a sense of when you would start that process?

Admiral MANAZIR. That process typically takes 18 months to 2 years to do the EIS [Environmental Impact Statement]. We would do the EIS 18 months to 2 years prior. Then we would assess after the EIS the MILCON that it would take. It would be another 2-year process. So I would assess, sir, that probably fiscal year 2018 to 2019 we would be looking at a rate at which we need to start looking at the East Coast base.

Senator KAIN. Great. That is helpful.

General DAVIS. Sir?

Senator KAIN. Yes, please.

General DAVIS. If I could, on the F-35Cs and the East Coast laydown of F-35s to the Marine Corps, we will have at least one C squadron at Marine Corps Air Station Beaufort. We have an F-35B squadron right there, a training squadron. We will have four squadrons. Then we also are flowing up to Cherry Point as well. So we will have a large number of Marine Corps F-35s on the East Coast.

Senator KAIN. Great. Thank you, General.

The President's budget indicates that depot level maintenance—I think it is at 83 percent of the requirement. I am curious how the Navy prioritizes between variants awaiting maintenance if you are at 83 percent. Assuming we get the President's budget level—that is a big assumption, but if you do or even if you do not, how do you prioritize among the variants in line for maintenance?

Admiral GROSKLAGS. Sir, well, as Admiral Manazir just spoke about, the depot induction process is rather complicated. The 83 percent that we have requested is sufficient to fully fund the work that we know we can accomplish in fiscal year 2016 at our depots. So we do not want to request more money than what we can actually execute.

One of our challenges that was alluded to earlier is that when we went through sequestration 2 years ago and a subsequent furlough, we lost a significant number of our workforce from our Government depots. We today have a shortfall of about 700 aircraft artisans spread across all type model series, but they are somewhat focused right now on the F-18 and our Hornet shortage. That is 700 out of about a 6,800-person requirement. So it is a significant impact to us. We have to build that workforce back up.

We have to build up our engineering workforce because, in addition to the artisans, we have engineering decisions that need to be made when we open up these aircraft and find a discrepancy. We need an engineer to come in and look at it and determine what type of repair has to happen. So we have to beef up our engineering expertise and numbers of people as well.

Until we get through that hiring process, we can only execute so many aircraft at a time. The fleet prioritizes which aircraft come in, even within a certain type of aircraft and then across all the type model series that come into our Government depots. So it is a multi-pronged approach, but we believe what has been requested in PB 2016 is the funding we need to execute our depot workload.

Senator Kaine. General Davis?

General Davis. Thank you, Senator.

On the depot issue, inside the Marine Corps, we are having a difficult time getting our ready bench—what General Dunford calls a ready bench—ready to deploy. It would be that crisis response force. We do a great job getting the guys out the door with assets and training, but it is training that next group that is ready to go.

One of the prime reasons we have a hard time with that right now is because we have about 19 percent of our flight line inventory that we should have up and in operation that is not available to fly. A large portion of that is because of depot. The airplanes are stacked up in the depot and they cannot get through. So in the Marine Corps, I have got 20 percent of my F-18s are stuck and not able to get through. But I have also got CH-53 helicopters. I have got Harriers. I have got V-22s that are coming through for normal depot rework, H-1s. So we have about a 19 percent shortfall across the spectrum inside the Marine Corps, and it extends beyond the F-18.

So just like Admiral Grosklags said, the depots can handle so much. What we have done is they have done, I think, a brilliant job, as Admiral Manazir said, working out the strategy to get our legacy Hornets back on the line, basically getting our young aviators out there flying and training. But we have had to go to industry to help to plus-up that capability, to get rid of the backlog that is on the back side of our depots because the real issue is getting those airplanes back on the line that the taxpayers have spent a lot of money to buy for us but we need to have them fixed or get them through the depot.

The other part of that is—part of sequestration—we have constricted our operations and maintenance accounts, our parts and spares accounts. So if I got an airplane on the line that is not depot but it cannot be flown because I do not have the parts to put on there, that impacts our ability to generate readiness as well.

Senator Kaine. I just want to summarize because I only have 20 seconds left. But it sounds like a sequester effect is kind of a compounding effect. So because of sequester, it is affecting our purchase of new platforms. So to deal with that, we pushed the life from 6,000 to 10,000 hours. But to do that, we also need a more robust depot program because not only are we keeping these planes going longer, but the corrosion and other challenges of a plane late in life are more difficult than early. But then the third compounding factor is sequester and furloughs have caused you to

lose some of your workforce because they have other options. They can go into the private sector. So those factors, not procuring as much, pushing the extension of life, more complex depot issues, but sequester and furlough also costing us some of the workforce—these issues kind of compound together to really affect our readiness. Am I understand the chain of events correctly?

Admiral GROSKLAGS. Yes, sir. I think you hit it right on the head. This is one of the complications that we warned the Congress about when we were talking about sequestration several years ago was particularly our depot throughput and the implications and the fact that it would take us several years to recover. That was compounded by the description that Admiral Manazir gave earlier about our high flight hour inspections kind of hitting us in the face for the F-18s as well.

Senator Kaine. All right. Thank you.

Thank you, Mr. Chair.

Senator WICKER. Senator Kaine, that was the best use of 20 seconds I have ever seen.

[Laughter.]

Senator Tillis, I am sure that testimony about Cherry Point was music to your ears.

Senator TILLIS. I was going to get him to repeat himself.

[Laughter.]

No, I appreciate that.

I was kind of curious between the East Coast and West Coast deployment. Do you all have a rough idea as a percentage of the base that will be deployed, how that will go East Coast/West Coast?

General DAVIS. Senator, the first base to stand up is MCAS Yuma in Arizona. We are also standing up—next is Beaufort, and then it is between Cherry Point and Miramar for our four bases in the continental United States. Then also Japan as well to MCAS Iwakuni. So we have got a fairly aggressive, but sustainable flow, thanks to your support and buying us those airplanes.

Senator TILLIS. What is the timeline on that?

General DAVIS. I can get back to you as to exactly. We have been adjusting that a little bit. We are actually trying to move it to the left a little bit to go a little bit sooner into Cherry Point. It was further out in the late 2020s. We are trying to move that back in the 2024–2025. But I can get you exactly when the first squadron is supposed to go into Cherry Point. As long as we keep our ramp whole for both F-35 B and C, that is going to help us out and make sure we fill those.

[The information referred to follows:]

Dates for the arrival of the first F-35 squadrons at Marine Corps Air Stations are:

- a. MCAS Yuma—Nov 2012
- b. MCAS Beaufort—July 2014
- c. MCAS Iwakuni—Jan 2017
- d. MCAS Miramar—Oct 2022
- e. MCAS Cherry Point—Oct 2022

Senator TILLIS. The other question I had was back to the question the chair and the ranking member asked. But just to be clear on the software capabilities that will be deployed with the F-35 and your confidence that when it is ready, it is ready, that you will deal with any issues. There has been some discussion about fewer

features and functions, but it sounds like to me the fusion capability, which is kind of a real-time network capability among several craft, would far outweigh a few features and functions that are isolated to the specific craft. Is that a—

General DAVIS. Absolutely correct. They have had problems when they tied. It is a fighter-to-fighter data link, and they have had some problems. It is really a latency problem with tying all four together. When we tie just two together and two sections, it works out really, really well.

Senator TILLIS. It is just scaling it.

General DAVIS. We are still connecting in through a link 16. So it actually has two data links in the airplane, which really exceptional.

It was real interesting. We did some close air support the other day, and initially the forward air control on the ground wanted to see streaming video. The F-35 will not get that till block 4 in 2019. But the clouds were coming in. So he says, well, the clouds are coming in. We cannot do the close air support anyway. The pilot in the F-35 says, hey, I see the target. I can see though the clouds. Let us do this thing.

So we do not have that capability today. We do not. We will have that with the F-35. So we will do close air support and support our marines on the ground differently, but we will do it in a contested environment and we will do it also from our amphibious ships and we will do it through the weather. I think it is some breakthrough capability for us. Kind of like the V-22 10 years ago, we are just scratching the itch and scratching the surface of what we can do with this airplane. I think it is going to be as wildly successful as the V-22 is right now.

Senator TILLIS. Thank you.

Admiral Manazir, I think the Navy had in the President's 2015 budget some 4,600 joint standoff weapons budgeted. In the 2016 budget, there are none. What has changed and what are we doing to replace that capability?

Admiral MANAZIR. Thank you, Mr. Senator, for that question.

What has changed is we did a joint assessment of our targeting plans in the most stressing operational plans against the highest end threat. We recognized when we did the joint assessment that we actually had planned for too many of those joint standoff weapons.

Senator TILLIS. So it was not a capability you needed?

Admiral MANAZIR. Yes, sir. Yes, we definitely need the capability, but we realize that we actually have enough.

Senator TILLIS. You have the scale.

Admiral MANAZIR. Yes, sir. We have the scale. We have the capability. We do not have any gaps with the joint standoff weapon.

What we are doing, however, in all of our weapons is modernizing our capability to do things like the JSOW with small diameter bomb to moving targets. The ability to reach into denied areas with our weapons is a capability we are looking at.

But specific to your question, sir, when we did the joint look at it, we realized that we had been double counting and we actually have enough.

Senator TILLIS. I mean, that is an example of a good outcome on a downward pressure on budgeting. A bad outcome on budgeting is sequestration. That is the worst thing that I have seen up here that has been put into law in my opinion from a budgeting tool standpoint.

General Grosklags—is that the right way to pronounce your name?

Admiral GROSKLAGS. It is Grosklags.

Senator TILLIS. I have heard it pronounced three different ways on this panel, so I thought I would try and get it right.

[Laughter.]

Senator TILLIS. Back to sequestration, I am kind of interested in the lack of certainty that we have with sequestration, how it affects our industrial base because if I am out there trying to figure out what we are going to buy from our industrial, I am making decisions that downsize my capacity right now, just based on the sort of paycheck-to-paycheck approach we have for budgeting right now. Do you have any specific areas of concerns? I know we talked about shipyards, but other areas within the industrial base that you are concerned that we are reaching a tipping point in terms of being able to ramp up if necessary?

Admiral GROSKLAGS. Yes, sir. We are concerned across the industrial base. You just alluded to weapons. It is true in the aircraft industry, as well as you alluded to the shipbuilding industry.

It is two-pronged. One is the uncertainty. As I mentioned in my opening statement, what we really need is a stable, predictable budget, and that is what industry needs as well to temper their investments. What areas are they going to invest in long-term? We as a department and we as taxpayers absolutely need those investments by industry to support our programs. So it is a two-way street there. We are making it very, very difficult on industry.

From our internal Department of Defense perspective, if you will, the uncertainty in the planning quite honestly makes us much less efficient. We are not able to put in place some of the acquisition strategies and some of the long-term plans with industry that we would like to that would drive down our program costs. So much as Senator Kaine alluded to and kind of the vicious circle we got into with the depots and readiness and flying hours, we end up with the same problem with some of our acquisition strategies. The more uncertainty, the more it costs us. The more it costs us, the less certain we can become about the future.

So I think your concern is right on the money, the unpredictability in stability and even the threat of sequestration, whether it is realized or not, hampers our ability to work with industry and get them to invest in the areas we think are important to our future.

Senator TILLIS. Thank you.

Thank you, Mr. Chair.

Senator WICKER. You know, Senator Tillis, I think the Senate is almost unanimous in agreeing that a return to sequestration would be most harmful. The question is how do we find the offsets to avoid it. There is the rub, absolutely.

Senator Ayotte, you are recognized.

Senator AYOTTE. Thank you, Mr. Chairman.

I want to thank all of you for being here.

I wanted to ask about some specific programs. General Davis, I understand that the CH-53K is on schedule to conduct its first flight by the end of 2015. Is that true, and are we on track there?

General DAVIS. We are on track. That is true.

Senator AYOTTE. How important is that new CH-53 to the Marine Corps in its modernization effort?

General DAVIS. The 53 Kilo—ma'am, thanks for that question—is absolutely essential to our modernization effort. We talked a little bit earlier about the flight line deficit we have in all of our aircraft, and CH-53 Echo is our only heavy lift airplane. It lifts heavy equipment from a sea base and takes it ashore. So it is kind part and parcel of what the Marine Corps does and what we be able to do. The CH-53 Kilo replaces those 53 Echoes. Echoes have done 95,000 hours in combat in the last 14 years. So really performed brilliantly for us. But they are getting old and wearing out. We can only keep them going for so long. The 53 Kilo gives us three times the lift capability. It will lift 27,000 pounds. Unprecedented. The only helicopter in the world that can do that and take a 27,000-pound load on a hot, heavy day and transport that gear 110 miles. So absolutely critical for our Marine Corps.

It is on track. Like every program, it has got its episodic things we learn in tests, but nothing would stop us from believing that we will fly that airplane this year and also too, we make an initial operating capability of the 53 Kilo in 2019.

Senator AYOTTE. So fly this year and then operational capability in 2019?

General DAVIS. Yes, ma'am.

Senator AYOTTE. Great. I appreciate that.

Rear Admiral Manazir, I also wanted to ask about a particular program, and that is the P-8A Poseidon's first operational deployment was completed, I understand, in June 2014 and that continuous 7th Fleet operational deployments are underway. How is the P-8 performing and how is that going?

Admiral MANAZIR. Yes, ma'am. Thanks for the question.

The P-8A is now in its third deployment. The third squadron is deploying it with their P-45 and have been essentially wildly successful.

Senator AYOTTE. I like to hear that. We hear about delays and things. Wildly successful—

Admiral MANAZIR. Yes, ma'am. I was the deputy to my current position a couple years ago for 2 full years, and now I have been the Director of Naval Warfare in the Navy here for a year and a half. The P-8A is the most successful acquisition program that you have funded for us. Taking a commercial 737 and filling it with high-end equipment works very well.

I actually flew that airplane last week. I went out of Jacksonville with a LRIP [Low Rate Initial Production] airplane, essentially a block 0 P-8A. We went out. They demonstrated for me dropping sonar buoys in a simulated targeted, tracking that target, building a synthetic aperture map of the eastern seaboard, connecting with platforms that were as far north as Norfolk and seeing the entire picture out over the water, and then the electronic support that it

does. So that what we have in the back of that airplane is very good.

On its very first flight out of Seattle, the very first flight of that airplane, they put it over the top of the P-3 looking at a blue submarine, a United States Navy submarine, and the P-8 had more information right away than the P-3 had.

We are incrementally improving that airplane to increments 1, 2 and 3. Increment 1 is already funded. Increment 2 is fully funded. Increment 3 is in part this budget. We are completing the kill chain that it takes from high altitude ASW [anti-submarine warfare] by buying a torpedo, the Mark 54. You put a wing kit on it. You can launch it from high altitude, which covers more water space and reduces the fatigue life on the airplane.

So, ma'am, in summary, very successful.

Senator AYOTTE. Excellent. I appreciate that update.

I wanted to ask. I am sure this was addressed to some extent by my colleagues, but I wanted to make sure that I understood where we are with the F-35, both the Marine Corps and Navy variants, and how things are going and what challenges remain. Who would love to go first on that?

Admiral GROSFLAGS. So let me touch on it just at kind of a macro level and cover both services and then General Davis and Admiral Manazir might tag back in.

We follow that program very closely. Obviously, Mr. Stackley is the service acquisition executive responsible for that program today. We believe they are making steady progress. As you are well aware, they rebaselined the program back about 4 years ago. Since that time, they have largely been executing to that schedule and to that funding profile. So from that perspective, they are making steady progress. They are making progress in development of the software that General Davis has talked about previously. The testing is moving forward. The production line is moving forward. We are spending a tremendous amount of time working with the JPO and our partners in both the Air Force, as well as the international community, on attacking affordability on that aircraft.

Now, that is not to say that everything is perfect, and we have alluded to some of the problems or discussed some of the problems we are having already. We are very much focused on the software development. That will continue to be a challenge as long as we are in this development phase, which runs out through 2018. We continue to focus on the availability of the aircraft, its readiness, its maintainability, and the support from the autonomic logistics system that supports the operations and the maintenance. As I mentioned, we are very focused on affordability.

We can talk more in detail about any one of those aspects, but the bottom line is they are making as a program steady progress forward to the IOC capability that General Davis has been talking about, and perhaps Admiral Manazir would like to talk just briefly about how we are progressing toward the Navy's IOC in 2018.

Admiral MANAZIR. Ma'am, thanks.

The Navy needs the F-35C to win the high-end fight.

We have been very discerning customers. There is a healthy debate. In fact, tomorrow is the third joint executive steering board to go into the specifics of F-35, all models, all services. I am com-

fortable that in the last year and a half the program has stabilized to where we will achieve our IOC, following the Marine Corps and following the Air Force, in August 2018. Our risks are in software. The risks to block 3F, which is post-2B software, to development have been 4 to 6 months of the original baseline that has been stabilized now at that 4- to 6-month risk now for over a year and a half. I am starting to get comfortable that we have that risk right.

We have identified other challenges in modifications to the airplane, and we are comfortable those modifications will be on track.

We think the funding is adequate to execute the plan. We just work with the Joint Program Office to actually execute that funding. So I believe that we are on a good track, but I will tell you that your scrutiny joins our scrutiny in working with the contractor to deliver this airplane.

To General Davis' point, this is a game-changing airplane. The fusion that we talked about earlier is simply making what looks like four targets actually down into the reality that is one target. So it is making all of those signals come out and show us that one target without a shadow of a doubt, and that is what we are working towards. But the capabilities of that F-35C are such that we need that for the war fight, and I believe that General Bogden and the rest of the program coupled with the services has us on a good track for both models, F-35 B and C.

Senator AYOTTE. Thank you.

Senator WICKER. Rear Admiral Manazir, help me remember what you said about the unexpected corrosion because of sea air and desert. Was that with regard to the Hornets?

Admiral MANAZIR. Yes, sir. Actually every airplane that we fly in the environments that we fly in, be it a desert environment or a salt air environment, experience some type of corrosion.

Senator WICKER. Of course. But you did not expect to have to deal with it because you did not expect the aircraft life to be that lengthy. Is that your testimony?

Admiral MANAZIR. That is correct, sir.

Senator WICKER. When was the Hornet developed?

Admiral MANAZIR. Early 1980s, sir. We IOCed the airplane in 1983, the F-18C—F-18A and took it to C in 1983.

Senator WICKER. We fly aircraft a long time.

Admiral MANAZIR. Yes, sir.

Senator WICKER. I got in the Air Force in 1976, and we were talking about how well the B-22s were. You know, here we are.

With regard to programs going forward, are we being a little more realistic about the expected timeframe in which we are going to have to use these aircraft?

Admiral MANAZIR. Sir, I believe we have been realistic the whole time. When we developed—

Senator WICKER. Even with regard to the Hornets?

Admiral MANAZIR. Yes, sir. NAVAIR SYSCOM assesses the airframe and designs the airplane with the contractor to go to a certain service length, every aspect of that airplane, including projected corrosion. We successfully got the entire fleet of 614 F-18A pluses through Cs to 6,000 hours through a maintenance program that was viable and it was positive, and we got them home at 6,000 hours. When we opened up the airplanes after—and we inspected

them to 8,000 hours, by the way. So we increased the life another third. When we inspected them and opened them up after 8,000 hours, we saw corrosion that we had not planned on. When you couple the—

Senator WICKER. It was not supposed to matter.

Admiral MANAZIR. That is right, sir. It was not supposed to matter. We were not supposed to be flying out here.

So we did the assessment of the service life, but when you opened the airplane deeply and look way inside—we are talking taking panels off and structure off—and the parts that we do not build anymore because they have become obsolete, and we need a range and depth—those parts were corroded. So the depot has had to design, engineer, build, and then install these parts that used to be put together by Boeing. That is the unplanned work we have, sir.

Senator WICKER. I am not making a good point about whether we should have expected to have to use these aircraft longer.

Admiral MANAZIR. You are making a great point, sir. A 30-year service life, 6,000 hours, the F-35 was designed for 30 years and 6,000 hours—8,000 hours.

We will probably have to assess extension of the service life. Now, I will tell you, sir, that what we have learned—we did not do an early enough service life extension program assessment of the F-18 A through C. So we found ourselves without the analysis and we are behind. But we learned that lesson with our F-18E/F.

We are going to extend the service life of the F-18E/F to 9,000 hours. That extension will occur in the mid-2020s. We are already in phase two of the service life assessment program, which will also show us the corrosion that occurs at 6,000 hours. So we have learned our lesson on the extension part.

But I would still say, sir, we buy and procure aircraft with the planned service life and we engineer to that service life.

I hope that answers your question.

Senator WICKER. Thank you very much.

Admiral Manazir, the Navy trains its future rotary wing pilots utilizing the legacy TH-57C Ranger helicopters. The B model is used for VFR and the C model is used for IFR. My understanding is that 125 helicopters currently support the Navy's daily requirement for 90 operational available aircraft. They are equipped with dated avionics and the maintenance and sustainment costs associated with these legacy aircraft are also increasing as the aircraft age.

So give us an assessment of operational reliability, sustainment plan, and replacement intentions.

Admiral MANAZIR. Yes, sir. You have characterized exactly how we train our initial rotary wing aviators. That TH-57 is a very effective initial trainer. I flew that. It is a good way to teach a kid how to fly a skid helicopter. It is obsolete.

A couple of years ago, we tried to replace it with a TH-57D. We were essentially going to make a glass cockpit in the Jet Ranger, and the FAA [Federal Aviation Administration]—we could not get the right configuration, so we canceled that program.

So we have just come through about two-thirds of an analysis to see how we train our rotary wing aviators, not necessarily how to replace the 57, but how do we train them.

But in the interim, sir, what I am really doing is working with the NAVAIR SYSCOM staff and the Army to bring down some of the TH-67 trainers that they have in Army training and to convert them to 57 configurations so at least we can give them a short-term better simulation than they have now. So we have a short-term plan for simulation and a longer-term plan potentially from a programmatic standpoint about how to train our rotary wing aviators. But we are looking at that very hard.

Senator WICKER. Thank you.

Senator Hirono?

Senator HIRONO. Thank you.

Admiral Grosklags, so there has been discussion about corrosion which occurs on our planes, on our ships. Is there a DOD-funded research and development as to anti-corrosion research? Because we are probably living in an environment where we need to get a lot more life out of our assets.

Admiral GROSCLAGS. I will have to get back to you on specific programs. I do know that there are a number of programs, including with our office in naval research, that address corrosion. It has, obviously, been an issue that we have dealt with as long as we have put aircraft and ships to sea. I cannot give you the specifics of any of those programs today, but I will certainly get back to you.

[The information referred to follows:]

The Department of Navy (DON) has an established, department-wide program to address corrosion concerns. This program is comprised of the DON Systems Commands (NAVAIR, NAVFAC, NAVSEA, NAVSUP, SPAWAR, and Marine Corps Systems Command) and the Office of Naval Research working together to address both common and platform-specific corrosion issues. The program works on mitigating corrosion through research and development efforts, aiding corrosion resistant product designs in acquisition, training and education of the fleet on preventative and corrective corrosion maintenance, and developing long-lasting corrective maintenance procedures for the system life cycle.

As required by Title 10 U.S.C. §2228, DON has established a service Corrosion Control and Prevention Executive (CCPE) responsible for ensuring corrosion prevention and control are integrated into DON policy and guidance for system acquisition and production; logistics research and support analysis; equipment standardization programs; military infrastructure design, construction and maintenance; and research, development, test and evaluation programs and activities. Additionally, the DON CCPE is required to provide both an "Annual Report on Corrosion" and a "Strategic Plan for Corrosion Prevention and Control" to Congress.

Attached are *The Department of Navy Annual Report on Corrosion for Fiscal Year 2014* and *The Department of Navy Strategic Plan for Corrosion Prevention and Control*. The annual report addresses the questions regarding on-going Navy and Marine Corps anti-corrosion research and development programs funded through DON and the Department of Defense. In addition to research and development programs of note, the report outlines specific efforts to mitigate corrosion in the areas of acquisition and sustainment. On-going program efforts are being made in materials, coatings, and equipment design technical areas. These programs evaluate promising new technologies that meet stringent DON performance requirements to address corrosion control.

Senator HIRONO. Are we making progress in a longer life for parts and anti-corrosive research?

Admiral GROSCLAGS. Yes, ma'am, absolutely, not only in terms of the materials that the parts are made of but also the coatings that we use to protect them from the environment. As we go through modification programs on our aircraft and update them over time,

we use those new materials and those new coatings which not only prevent the corrosion in many cases, but they also reduce the workload for our technicians that have to work on those aircraft.

But the materials science continues to advance, but it is something we pay very close attention to. The difficulty is sometimes compounded by the other mission capabilities that we try to employ at the same time on those aircraft such as low observable coatings. That combination is not always the easiest to deal with. So there is a lot of effort going forward, and if you would like more details on specific programs, I can get that to you.

Senator HIRONO. There may be some nanotechnology that could be useful in this area. I know that every time you put a coating on, that reduces—that adds to the weight of the plane and all of that. So I understand that.

I would be interested to know who is funding that kind of research for the Department of Defense.

Can you also talk a little bit more about the specific improvements that have been implemented at our depots, I assume to effect efficiencies, and how long it takes for them to get the planes back out? Anyone?

Admiral MANAZIR. Ma'am, the specific method that we are using now is called "critical chain project management." It is a theory of constraints-based profile. The commanding officers of the depots have trained or are training their artisans, engineers, and supervisors to create a line in the depot that understands what the constraint on the airplane would be. So whether it is materials, a part, an engineering disposition, or some other factor, they understand what the constraint is for the airplanes coming through. They understand the organization.

For instance, down at FRC Southeast in Jacksonville, Florida, they took a holistic look over the last several months, the last year at their system, and they figured out, they thought, that they had a capacity in their engineering force to run 17 airplanes through at a time. When they did an assessment of their engineers, they figured out they only had the engineering capacity to put six through. If they had not done that analysis, they would continue to be choked by the amount of work that goes through the depot.

So they leaned out the line to bring it down to six, while at the same time they are hiring, certifying, and training the engineers to bring those through. So what they are going to do by the end of this year—they are projected to not only come back up to 17, but to double that to 34. That new critical chain project management is also being projected to go out to FRC Southwest and North Island in Coronado, CA, and they will apply that same methodology to double, then triple the output that we are currently seeing right now.

Admiral Grosklags' point about the funding at 83 percent—until we get that depot leaned out, the engineers hired, the artisans hired, and the parts in place, the funding is not the constraint. So once we get that all up, then we will go back up to 100 percent funding.

I hope that answers the question.

Senator HIRONO. So can you give an estimate as to—by using this kind of critical project management process, how much more efficient we have become?

Admiral MANAZIR. The depot will be easily efficient by 200 percent more, so 100 percent more efficient. We see some projections that will take us up to even 300 percent. For instance, right now, we are putting 65 airplanes a year through that. We forecast in the next couple of years to get to 90 aircraft through the depot, and we will be out of this current near-term shortfall problem by 2018.

Senator HIRONO. That is very commendable. We note that you do have a shortage of workers—right—skilled people?

Admiral MANAZIR. Yes, ma'am.

Senator HIRONO. What can we do besides getting rid of sequester—

Admiral MANAZIR. Do not sequester again. I have to join the chair and the ranking member to say that the sequestration was inherently deleterious to everything we were doing. It particularly hit us in the depots where the artisans were told to go home because we then furloughed them and they went to work somewhere else. So we are trying to recover from that labor shortage right now, and they do not exist. It is hard to hire them. We have to train them, and then we have to get that workforce on the airplanes and start to generate. So that is why the CNO [Chief of Naval Operations] testified that about 15 months—about 13 months from now, we will start to see the depot effect because they have hired all the resources and now we can see that they are starting to put out those airplanes at the rate that we know we can do.

Senator HIRONO. Thank you.

Senator WICKER. Senator Tillis.

Senator TILLIS. Thank you, Mr. Chair.

Going back to the discussion about the corrosion, it occurred to me if you have got a tactical fighter you said had a 30-year life and 8,000 hours, you design for that. So if you wanted to have a 50-year life and 12,000 hours, you are going to pay the incremental costs for doing that up front which reduces the number of craft that are going to be deployed, which affects readiness. So you got to set limits.

But then there is another question. When we have this discussion about extending the life of a 30-year-old tactical platform, are there not only certain capabilities that you can bring that underlying platform up to as compared to, say, an F-35? So you are kind of putting a \$100 saddle on a \$10 horse in terms of the new technological platform that you have today. Is that a fair way to say it?

General DAVIS. It is, sir. First off, as taxpayers, you would expect us to extract maximum value out of everything you give to us, and we do that. So an airplane that is designed for 30 years like the F-18 and the Harrier—we are going to fly them as long as we possibly can and do good work. But there comes a knee in the curve where you can only modify and improve to a certain point to include I think actually doing a better job with corrosion control inside, teaching our maintenance marines and sailors how to do a better job with that. So we have kind of re-embraced that.

But there comes a time out there you have got to embrace the technology and move out. I think we are there kind of with the V-22 and the F-35 inside the naval service P-8.

Senator TILLIS. I was thinking back when that plane was being deployed, I had a Mustang II. It was a dark chapter in Ford's history. The Mustangs of today I would much rather want to build capabilities and go fast in.

So that is why I think we get into this discussion because of sequestration.

General DAVIS. You remember the Mustang III.

Senator TILLIS. It was an upgrade from the Pinto.

The sequestration mindset I think is getting into a discussion that does something that the Commandant says we ought not do. We should never get a point where our capabilities put our folks into a position of a fair fight. If we do not start looking at a way to get—see, one question I have for you all—just you all opine as much as you want.

It seems to me that sequestration—the way that they go about it is a way that no business would go about driving efficiencies out of your organization. I know we had discussion about the worry about how we pay for increased defense spending, but I wonder whether the question should be if we gave you maximum flexibility to use your resources in the most efficient way, how could we—we talked about JSOW's. You found by looking at that, having the time to look and optimize your organization, you found a weapons system that you did not need any more of.

If we got the distraction of sequestration out of the way and we started looking more at strategic sourcing, lean execution of processes, it seems to me that a lot of the net reductions achieved by sequestration, increases in efficiencies could be achieved but in a much more strategic way that gives you all the flexibility to do what you do for the highest level of readiness, for the lowest cost.

I mean, if we were to go back and say, you know what, we are going to achieve roughly within some range, the ultimate bending of the curve in defense spending, but we want you all to tell us how to go about allowing you to do that, can you think through ways where it is not just spend more, spend more, spend more, but spend more smartly? Is there some way that we can actually get out of this rut of saying we want to get rid of sequestration, but we do not know how to actually budget in a way that achieves our budget priorities? Have you all given thought to how you can give us advice on how to get out of this rut?

Admiral MANAZIR. Sir, let me try a couple of things.

The first one is maybe my two colleagues will but I am not going to give you advice, sir. I thank you very much for the support of the programs that we do field.

Back to the capability piece, I would like the opportunity to come give you a brief on the capabilities going into the F-18 E and F. The airplane we have in there is eye-watering. The things that we are putting into that E and F—we are going to fly that airplane almost to 2040. We will require the airplane to wind with the F-35C. So we do put those modernization points in there.

To your point about sequestration, it does affect our readiness. We have talked about that. It also affects our decisions to mod-

ernize, and so if the funding comes down, I cannot make those airplanes relevant.

Admiral Grosklags testified that the stability of the funding is what is most important. General Davis and I are focused on a horizon that is out about 2025.

Unfortunately for us, the threat gets a vote. They are expanding across the world. The threats to our forces are going up. We have to have the PB 2016 funding at least to address with risk all of the missions that we are going to do out there.

But the stability of that funding is very important. As we program for the modernization, if you plan for a funding level that allows us to program the modernization in and then drop that level by 10 percent, fence some programs so the immediate effect on the rest of the discretionary budget is 14 percent, I have to stop the modernization. That disrupts the vendor base. That disrupts my modernization. It disrupts my research. It disrupts the—

Senator TILLIS. It ultimately drives up your long-term costs.

Admiral MANAZIR. It is going to drive up the cost. Yes, sir.

So while we are trying drive down the costs with sequestration, you are actually driving up the end cost of the things that we are trying to build. If we cannot build them and deploy them, we will not win.

Admiral GROSFLAGS. Yes, sir. I do not want to try to give you specifics, but much as we have discussed on a couple of topics here, kind of that vicious cycle that spirals us downward, I think what you are looking for is kind of that virtuous cycle that would enable us to put in place acquisition strategies to incentive industry to invest, to enable us to go to more of a commercial model where it is appropriate, which requires the stability and the predictability that we just talked about. There would be a certain virtuous cycle associated with that.

The simple example is our ability to do multiyear contracts. I know there is House language that Congressman Thornberry has proposed that would ease our ability to put in place multiyear contracts where it is appropriate. It is that type of virtuous cycle where if we can drive down the cost of a particular capability or the capacity associated with it, then we have the choice of either buying more of those or investing more in readiness or simply not spending those dollars.

Today, we have so many things on the unfunded list because we have been kind of nicked over time—even the BBA agreement that was alluded to earlier was a significant decrease from what we had proposed in the President's budget that year.

So what I would propose is we need to get in that virtuous cycle as opposed to the death spiral that we kind of find ourselves in.

Senator TILLIS. Thank you, Mr. Chair.

Senator WICKER. Thank you. Senator Tillis, when did you drive that Mustang?

Senator TILLIS. 1977 and 1978.

Senator WICKER. Can we agree that the best thing to come out of the early Mustang was "Mustang Sally"?

[Laughter.]

Senator TILLIS. That is true. But it was the nicest car in my trailer park.

Senator WICKER. Gentlemen, this has been a very productive hearing, and I think we are all agreed, a very impressive panel. So we thank you for your testimony and your give and take with us, and I think we are much better informed. Thank you so much, and we look forward to working with you.

This hearing is adjourned.

[Whereupon, at 10:18 a.m., the subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR ROGER WICKER

MARITIME SURVEILLANCE

1. Senator WICKER. Admiral Grosklags, General Davis, and Admiral Manazir, I am encouraged by continued investment in technologies that support our military strategy in the Asia-Pacific region. As you know, the Pacific is incredibly large—over 165 million square kilometers. While the vastness of the Pacific region presents a tremendous challenge, new technologies have the potential to greatly enhance operations in the Pacific. In particular, I am excited about how unmanned systems like the MQ-4C Triton, with its unparalleled persistence, endurance, and range, can meet the unique challenges of the region. How important is Triton to the Pacific strategy, and have you explored opportunities to accelerate Triton to meet our growing needs in the region?

Admiral GROSKLAGS and Admiral MANAZIR. The MQ-4C Triton is a key component of the Navy Maritime Patrol Reconnaissance Force. Its persistent sensor dwell, combined with networked sensors, will enable it to effectively meet Intelligence, Surveillance, and Reconnaissance (ISR) requirements in support of the Navy Maritime Strategy. MQ-4C Triton will operate from Guam beginning in 2017 where it will be an integral part of increasing our presence in the Asia-Pacific region. The remaining development and test work combined with the current fiscal environment limits our ability to accelerate the MQ-4C program without incurring significant risk elsewhere. Timely and predictable system delivery is crucial to the Navy's plan for meeting the intent of the fiscal year 2011 NDAA. Due to the Navy's Maritime ISR and Targeting Transition Plan dependence on timely fielding to limit increased costs of sustaining legacy (EP-3E) platforms, continued Congressional support for the MQ-4C program is vital to transition success.

General DAVIS. The Marine Corps does not participate in the MQ-4C Triton program and defers to the Navy on a response to this question.

2. Senator WICKER. Admiral Grosklags and Admiral Manazir, the Navy's maritime surveillance fleet is reaching the end of its service life and the Navy is recapitalizing this mission. Given the critical importance of maritime surveillance to our national security and our economy, we cannot afford a gap in this capability. A big part of the recapitalization plan is the MQ-4C Triton unmanned system, which will provide persistent surveillance with an advanced maritime radar capable of providing detailed surveillance of millions of square miles of ocean. Does the Navy have sufficient resources to meet its global requirements for maritime surveillance?

Admiral GROSKLAGS and MANAZIR. The fiscal year 2016 budget request reduces risk in the Navy's Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR&T) Transition Plan in both capacity and capability. In addition, the Navy continues to work with the Joint Staff, Office of the Secretary of Defense, and the Fleet to optimize the Navy's MISR&T Transition Plan and comply with the fiscal year 2011 National Defense Authorization Act. Despite budgetary pressures forcing a reduction in procurement quantities of baseline air vehicles, the Navy was able to maintain fielding timelines for the future force and continue development of future sensors.

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

F-35

3. Senator AYOTTE. Admiral Grosklags, if sequester returns next fiscal year, how many F-35s will the Navy and Marine Corps buy and how would this impact unit costs?

Admiral GROSKLAGS. A return to sequestration funding levels in fiscal year 2016 would necessitate a review and possible revision of the defense strategy. Until such

a review is completed, the Department cannot determine how a reduction in the overall budget would impact specific programs. Even without sequestration, the Department was compelled to defer procurement of sixteen F-35C aircraft across the 2016 Future Years Defense Program due to resource constraints. Additional reductions which might be driven by sequestration would nominally result in increased unit costs. This increase would likely be exacerbated by the potential for sequester driven reductions in USAF quantities.

4. Senator AYOTTE. Admiral Grosklags and Admiral Manazir, please describe the importance of the F-35C program to the Navy's ability to potentially conduct future operations against near-peer adversaries with advanced anti-access and area-denial capabilities.

Admiral GROSKLAGS and Admiral MANAZIR. The F-35C is absolutely essential to the future combat capability of our Carrier Strike Groups and Carrier Air Wings. It provides Combatant Commanders with a 5th generation strike fighter aircraft that combines low observable technology, data fused sensors and advanced weapons capabilities to outpace future threats. The F-35C will be employed in a complementary manner with the F/A-18E/F, EA-18G and E-2D to provide an ideal balance of versatility, lethality, survivability, and capacity that will enable access and overmatch of threats in contested environments.

5. Senator AYOTTE. Admiral Manazir, the Navy plans to buy 38 F-35C aircraft over the next 5 years. I understand that that represents a reduction of 16 aircraft compared to last year's plan of 54 aircraft over the same period. Was that reduction purely budget driven or was there some other reason?

Admiral MANAZIR. The Fiscal Year 2016 budget request delivers a balanced budget that adheres to fiscal guidance. Due to fiscal constraints, the Navy was compelled to defer procurement of 16 F-35C aircraft as a budgetary decision.

6. Senator AYOTTE. Admiral Manazir, when will the F-35C reach full operational capability?

Admiral MANAZIR. The Navy expects to achieve initial operational capability (IOC) in fiscal year 2018 and deploy its first squadron with block 3F capability in 2021. The F-35C is projected to reach full operational capability (FOC) in 2034. FOC will be achieved when all active duty, reserve, training, and support squadrons have received their F-35C primary aircraft authorization (PAA) with all required logistical, maintenance, and training support.

7. Senator AYOTTE. Admiral Manazir, does the Navy have a shortfall in tactical aviation?

Admiral MANAZIR. The Navy remains challenged with end of life planning for F/A-18A-D aircraft that reach the end of their service life before replacement aircraft (F-35B/C) can be fully delivered into service. Strike Fighter inventory management risk increases with the Fiscal Year 2016 President's budget submission, further increasing the gap between supply and the Department's Master Aviation Plan demand.

Strike fighter inventory management should be viewed in two separate and distinct phases. The near term challenge is due to a combination of reduced strike fighter aircraft procurement, higher than planned TACAIR utilization rates, and F/A-18A-D depot production falling short of the 2013 and 2014 required output. Aggressive efforts across the Department were instituted in 2014 to improve depot productivity and return more aircraft back to service. Aviation depots are expected to improve throughput to meet annual production requirements by fiscal year 2017 and fully recover by fiscal year 2019, at which time the focus will include F/A-18E/F service life extension. In the far term, strike fighter inventory management is predominantly affected by new aircraft procurement, particularly the F/A-18E/F and F-35. COCOM-driven operations and Fleet Response Training Plan (FRTP) training and readiness requirements are driving a strike fighter utilization rate which currently outpaces procurement.

8. Senator AYOTTE. Admiral Manazir what is the plan to meet the Navy's tactical aviation requirement before the F-35C reaches full operational capability?

Admiral MANAZIR. The Navy's strike fighter inventory management strategy requires the sustainment of legacy F/A-18A-D aircraft, the procurement and sustainment of the current F/A-18E/F fleet, and procurement of the F-35C. The Department carefully monitors inventory requirements and projected aircraft availability to meet operational demands.

F/A-18A-D aircraft have been, and will remain operationally relevant through upgrades. On-going high flight hour (HFH) inspections, repairs and recurring inspections allow continued flight past the current flight hour service life limit of

8,000 hours. The current Service Life Extension Program (SLEP) efforts will extend the airframe life of 150 aircraft to 10,000 hours and will maintain F/A-18A-D tactical relevance through their active duty sundown in 2026, and reserve sundown in the 2030's.

The F/A-18E/F will be the predominant aircraft in the Navy's carrier air wing strike fighter force through 2035. Sustainment includes needed capability upgrades with a focus on completing both passive and active kill-chains, which significantly improve the survivability and strike capability of the carrier air wing. To meet the operational requirements out to 2035, the F/A-18E/F is undergoing a Service Life Assessment Program (SLAP) designed to extend the airframe service life to 9,000 flight hours. The Service Life Management Plan philosophy has been applied to the F/A-18E/F fleet at an earlier point in its lifecycle than the F/A-18A-D. This will facilitate optimization of Fatigue Life Expended, flight hours, and total landings, thereby better aligning aircraft service life with fleet requirements.

To meet far-term inventory challenges and incorporate advanced strike fighter capabilities, the Navy remains fully committed to the F-35C. The Fiscal Year 2016 President's budget request supports the procurement of low rate initial production (LRIP) aircraft to support System Design and Development (SDD), Fleet Replacement Squadron (FRS) integration and Developmental and Operational Test and Evaluation. The Department's goal is to increase F-35C development and procurement funding over the next five years to achieve full rate production.

9. Senator AYOTTE. Admiral Manazir, how many Super Hornets would it take to meet the Navy's tactical aviation requirement?

Admiral MANAZIR. The Navy requires two to three additional squadrons (24–36 aircraft) of Super Hornets to meet the strike fighter inventory requirement.

F-18

10. Senator AYOTTE. General Davis and Admiral Manazir, the joint prepared statement points out that the F-18 Hornet depot backlog will not be resolved until 2019. How has this backlog impacted Navy and Marine Corps readiness?

General DAVIS. The Department prioritizes and continues to meet deployed readiness requirements above all else. However, achieving these standards has come at the expense of force training for operational squadrons preparing to deploy. This poses risk to our future readiness, and impacts our surge capacity through 2019.

While Marine Corps F/A-18 squadrons are manned and trained to maintain readiness levels, the current F/A-18A-D depot throughput challenge has reduced the number of aircraft available to fleet squadrons. Consequently, the Marine Corps is currently deploying F/A-18 squadrons with a temporary Flight Line Entitlement of 10 aircraft versus the required 12 aircraft, directly reducing their capacity to fight and train. Deploying at this reduced capacity allows the ready bench of non-deployed squadrons more of the assets they need to train and prepare for deployment. The Marine Corps also is fully resourcing its FRS with enough in-reporting aircraft to meet its Pilot Throughput Requirement (PTR). We are doing this today with no pool of students, cutting down on time to train and keeping the fleet as healthy as possible. As depot throughput improves, the Marine Corps will return to forward deploying 12 aircraft squadrons, regaining warfighting and training capacity.

The compound effect of achieving deployed readiness standards in this manner is an overall reduced readiness posture of the non-deployed strike fighter-force and over-utilization of available aircraft. This process strains the operational fleet of aircraft, leading to greater service life consumption across the strike-fighter inventory. Improved depot throughput, careful management of aircraft utilization, and more utilization of shore based Forward Arming and Refueling Points (FARPs) for operational missions will return strike-fighter squadrons to the optimum readiness profiles, which in turn will improve non-deployed force readiness and surge capacity.

Admiral MANAZIR. The Department prioritizes and continues to meet deployed readiness requirements set forth in the Fleet Response Training Plan (FRTP). However, achieving these standards has come at the expense of force training for operational squadrons in the early stages of the FRTP and the Fleet Replacement Squadrons responsible for aircrew initial and refresher training. This poses risk to our future readiness and impacts our surge capacity through 2019.

The Navy manages risk in readiness through the FRTP, which is based on a structure of tiered readiness that prepares units for operational deployment. To support more intensive aircraft maintenance efforts and reduced aircrew training requirements during the initial FRTP phases, operational squadrons are assigned and operate fewer aircraft than required for deployment. With an increased number of strike-fighter aircraft in an out-of-reporting status for planned or unplanned depot level maintenance, aircraft available for these squadrons are below their prescribed

entitlements. Consequently, their readiness levels are degraded for lack of training opportunities due to insufficient aircraft. However, as each strike-fighter squadron approaches the intermediate and advanced phases of the FRTP, they receive the full complement of entitled aircraft and complete current and missed training events required to achieve deployed readiness standards.

The compound effect of achieving deployed readiness standards in this manner is an overall reduced readiness posture of the non-deployed strike fighter-force. Additionally, this process strains the operational fleet of aircraft through overutilization in the advanced phases of the FRTP, which leads to greater service life consumption across the strike-fighter inventory. Improved depot throughput capacity and careful management of aircraft utilization will return strike-fighter squadrons to the optimum readiness profiles across the FRTP, which in turn will improve non-deployed force readiness and surge capacity.

11. Senator AYOTTE. General Davis and Admiral Manazir, what can we do to solve this depot backlog sooner?

General DAVIS. The Fiscal Year 2016 President's Budget request provides funding to align F/A-18 depot throughput to projected capacity.

In 2014, Navy leadership incorporated a multifaceted strategy to improve F/A-18 depot efficiency and throughput. The current constraints to the Hornet line are both manpower and material related. The strategy addresses these issues with an aggressive hiring and training plan for artisans and engineers, kitting of materials for the high flight hour (HFF) events based on common repair requirements, and the implementation of an enterprise-wide improvement to production flow using a theory of constraints method called critical chain project management. Additionally, the Navy has collaborated with Boeing in identifying several areas to improve overall depot throughput, such as employing Boeing Engineering Support and incorporating the use of its Cecil Field facility. The strategy is proving successful as depot production levels are improving. With the requested funding, and under this plan, the Department anticipates continued improvement in depot throughput to meet annual production requirements by fiscal year 2017 and full recovery by fiscal year 2019.

A return to sequestration in fiscal year 2016 is a recurring concern. The Department requires a stable budget to meet these objectives. Sequestration and the compound effects of the 2013 government shutdown drove manning shortfalls for both artisans and engineers and hampered the Navy's ability to respond to unplanned work found during HFF inspections. Any further reductions in the depot maintenance, engineering and contractor support budgets below requested levels will impede the depot throughput improvement strategy. A return to sequestration would have a compounding effect that will further increase risk in our strike fighter inventory management strategy and reduce the availability of warfighting assets.

Admiral MANAZIR. The Fiscal Year 2016 President's Budget request provides funding to align F/A-18A-F depot throughput to projected capacity.

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In 2014 Navy leadership incorporated a multifaceted strategy to improve F/A-18 depot efficiency and throughput capacity. The strategy is proving successful and the Naval Aviation Enterprise will reassess the controls. This strategy includes an aggressive hiring plan for artisans and engineers, kitting of materials for the HFF events, which previously resulted in unplanned repairs and the implementation of an enterprise wide improvement to production flow using critical chain theory tools. Additionally, the Navy has collaborated with Boeing and identified several areas to improve overall depot throughput, such as employing Boeing Engineering Support and incorporating Super Hornets modifications at its Cecil Field facility. With the requested funding, and under this plan, the Department anticipates an improvement in depot production by fiscal year 2017 and a positive contribution to the strike fighter inventory calculus by fiscal year 2019.

A return to sequestration in fiscal year 2016 is a recurring concern. The Department requires a stable budget to meet these objectives. Sequestration and the compound effects of the 2013 government shutdown drove manning shortfalls for both artisans and engineers and hampered the Navy's ability to respond to unplanned work found during HFH inspections. Any further reductions in the depot maintenance, engineering and contractor support budgets below requested levels will impede the depot throughput improvement strategy. Moreover, a return to sequestration will affect recent initiatives including the F/A-18E/F service life assessment and extension programs (SLAP/SLEP). Current efforts for Super Hornet SLAP/SLEP include fatigue life analysis, stress predictions, and inspection and modification development. Ongoing efforts will inform future work and ensure material kits are developed to better support life extension efforts. However, these analyses are required prior to the first aircraft reaching its 6,000 hour limit, expected in CY2017. A return to sequestration would have a compounding effect that will further increase risk in our strike fighter inventory management strategy and reduce the availability of warfighting assets.

The Department requires a stable budget to realize the full benefits of our strategy. Sequestration and the compound effects of the 2013 government shutdown drove shortfalls in both artisans and engineers, and hampered the Navy's ability to respond to unplanned work found during HFH inspections. A recurring concern is the impact of a return to sequestration funding levels in fiscal year 2016. Any further reductions in the depot maintenance, engineering and contractor support budgets below requested levels will hamper the depot throughput improvement strategy. Moreover, a return to sequestration will affect recent initiatives including the F/A-18E/F SLAP/SLEP. Current efforts for Super Hornet SLAP/SLEP include fatigue life analysis, hot spot predictions, and inspection and modification development. These ongoing efforts will inform future work and ensure material kits are developed to better support the life extension efforts. Analysis is needed prior to the first aircraft reaching its 6,000 hour limit, expected in CY2017. A return to sequestration funding levels would disrupt the ground work of the analysis and delay any efficiencies gained. This compound effect will further increase risk in our strike fighter inventory management strategy and reduce the availability of warfighting assets.

USMC HARRIER REPLACEMENT

12. Senator AYOTTE. General Davis, in September 2012, six Harriers were destroyed in Helmand Province, Afghanistan. Has the Marine Corps replaced those six jets?

General DAVIS. No, the Marine Corps has not replaced these six aircraft. We have identified this shortfall on previous Unfunded Priority Lists (UPL) and the Opportunity, Growth, and Security Initiative (OGSI) list in March of fiscal year 2014. Most recently, the Marine Corps has again included the six jets on this year's UPL. The request for six F-35Bs represents the direct replacement of the 6 AV-8B Harrier tactical aircraft lost due to enemy action at FOB Bastion in Afghanistan. To date, no funding has been received. However, the HASC has marked this program + \$974.9 Million (fiscal year 2016) as of the full committee mark up.

13. Senator AYOTTE. General Davis, if the Marine Corps had the funding, would it replace those jets?

General DAVIS. Unequivocally, yes.

14. Senator AYOTTE. General Davis, what would replace the Harriers?

General DAVIS. The AV-8B is no longer in production, so the Marine Corps is unable to procure additional Harrier airframes. The Marine Corps is currently in the process of transitioning all of its TACAIR fleet, to include F/A-18A-D, EA-6B and the AV-8B to the F-35B STOVL Joint Strike Fighter. If given the requested funds, the Marine Corps would replace the lost AV-8Bs with F-35Bs.

15. Senator AYOTTE. General Davis, how much would the replacements cost?

General DAVIS. The current replacement cost for the AV-8B loss with six F-35Bs is \$1.050B for fiscal year 2016.

16. Senator AYOTTE. General Davis, would it be better to replace one or two jets than to replace none at all?

General DAVIS. Yes, every replacement jet that we can procure will help aid the Marine Corps in transitioning as quickly as possible to the F-35 and allow us to diminish our flight line gap. Given that the AV-8B is out of production and the procurement plan to replace all of the tactical jets in the Marine Corps with the F-35B, it is critical that we replace the six AV-8Bs that were lost with six F-35Bs. When the Marine Corps lost those six AV-8Bs, we had to stand down a fleet Har-

rier squadron. Procuring the six additional F-35Bs would allow us to stand up another F-35B squadron almost a year earlier than is currently scheduled, directly reducing risk we have assumed in our legacy aircraft.

HEALTH OF INDUSTRIAL BASE

17. Senator AYOTTE. Admiral Grosklags, please describe the health of the industrial base that supports Navy and Marine Corps aviation programs.

Admiral GROSFLAGS. The industrial base that supports the Navy and Marine Corps aviation programs is moderately healthy. There is substantial overlap between military and commercial suppliers in the aerospace manufacturing industry which ameliorates the impacts of declining defense spending in the sector. The commercial sector has benefitted from the decline in oil prices which has allowed commercial customers to reallocate funding from fuel to the replacement of aging aircraft. As such, a substantial portion of the aerospace manufacturing supply chain is experiencing growth, even as defense aviation spending declines. However the Department of the Navy does have significant concerns relative to sustaining critical design capabilities and unique skill sets associated with the design and development of tactical aircraft.

At the prime contractor level for Navy and Marine Corps aviation programs, there continues to be a relatively small number of companies with the requisite expertise to develop complex, military-unique aircraft and weapons systems. In order to drive down ownership costs, the trend has been to buy fewer different types of aircraft and weapons by making each more flexible and capable. The result is fewer but larger programs which reduce competitive opportunities and place unsuccessful bidders at greater risk of not surviving to compete in the future. Additionally, there is a significant risk of losing design teams due to fewer programs. As a result, it is likely that significantly less experienced engineers and scientists will tackle future technical challenges, leading to longer and more expensive development and initial production costs. As the pool of potential prime contractors and subcontractors shrinks, the environment for innovation and competition is similarly diminished. Although the Navy and Marine Corps currently draw from an adequate aviation industrial base, the limited number of viable prime contractors and military-unique suppliers is an area of concern.

18. Senator AYOTTE. Admiral Grosklags, how would a full return of defense sequestration next fiscal year impact the health of the industrial base that supports Navy and Marine Corps aviation programs?

Admiral GROSFLAGS. A return to sequestration funding levels in fiscal year 2016 would necessitate a review and possible revision of the defense strategy. Until such a review is completed, the Department cannot determine how a reduction in the overall budget would be apportioned across programs. However, it can be assumed that a number of budget lines will be “protected” from funding reductions—e.g. manpower accounts and strategic deterrence programs. The “protection” of these budget lines will necessitate a greater reduction be apportioned to all other programs. The final size of the required funding reductions will be combined with results of the strategy review to determine which aviation programs will be reduced, retained unaffected, or terminated. Industrial base health will be one of many considerations as we work through this balancing of funding and strategy.

It must also be recognized that simply the outstanding *potential* of a full return of defense sequestration has a negative impact on the health of the industrial base. The uncertainty directly impacts their ability to plan and execute investment strategies, execute to the most efficient operating model(s), and raise capital—all contributing to a less healthy industrial base and increased costs to the Department.

JOINT STANDOFF WEAPON

19. Senator AYOTTE. Admiral Manazir, in the President’s fiscal year 2015 budget, the Navy projected buying 4,632 more Joint Standoff Weapons (JSOWs) over the life of the program, including 200 in fiscal year 2016. In the President’s fiscal year 2016 budget, the program was terminated. What has changed to make those JSOWs no longer necessary to the Navy’s requirements?

Admiral MANAZIR. [Deleted.]

20. Senator AYOTTE. Admiral Manazir, what is the plan to replace that lost capability?

Admiral MANAZIR. [Deleted.]

